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The Refrigeration Service Engineer

Vol. 9 No. 3

March, 1941

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COVER

A view of the bench arrangement in the shop of M & R Refrigeration Co. see article on page 26.

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TABLE OF CONTENTS

Page

Estimating and Selling Commercial Refrigeration, *by S. C. Moncher* 13

B-r-r-r, 115 Below Zero 16

Motor Capacitor Failure Due to Misuse 18

Servel Supermetic, *by P. B. Reed* 19

New Polish for Refrigerators 22

Refrigeration on Wheels 22

Commercial Selling 23

Service Is a Business, *by C. B. Herbert* 23

Streamlined Shop Merchandises Service 26

Question Box 30

Chilling and Hardening Room Off Balance 30

Average Water Temperature 30

Changing Mills Freezer to Remote Installation 40

New and Improved Appliances 31

Carlsbad Caverns Installation Wins Imperial Triple Seal Contest 41

R.S.E.S. News 42

Second Convention Sponsored by Ontario Maple Leaf Chapter "Ready to Go" 42

Chapter Notes 44

Ladies' Auxiliary 57

News of the Industry 59

Avoid

DIVIDED RESPONSIBILITY

WHEN you use expansion valves, solenoid valves and controls, all of which are engineered under the same close supervision, you have the best assurance of satisfactory performance and the greatest harmony of operation.

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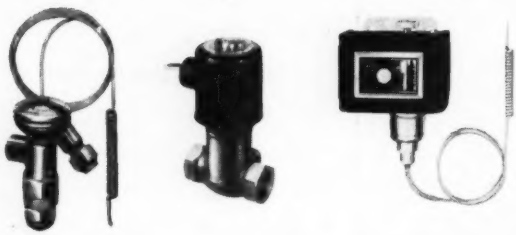

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The Refrigeration Service Engineer

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Estimating and Selling Commercial Refrigeration

In which the Author provides quick methods of calculating the load for Ice Cream Parlors, Candy Shops, Fur Storage Rooms, Hotels, Hospitals, Institutions, Packing Houses, and Beer Stations

By S. C. MONCHER*

Ice Cream Parlors

WITH the perfection of the modern, compact, automatic ice cream manufacturing machine, commercial refrigeration is finding a new fertile field. Owners of fair sized ice cream parlors find it more profitable to manufacture their own ice cream than to purchase it from an outside source. In addition, they have an opportunity to make their product distinctive as to quality and flavor.

In conjunction with the ice cream machine, a refrigerator kept at—20° to 0° is necessary for the efficient hardening of the ice cream after it has been mixed in the machine. This should be the talking point of the commercial salesman. The advantages of fast hardening are sufficient to warrent a heavier investment in original equipment.

The average installation of this kind does not require the ice cream machine to operate more than two or three hours per day. This being the case, the refrigerating condensing unit used in connection with the machine may be used to operate the hardening cabinet for the remaining 21 to 22 hours. The hold-over capacity of a well insulated ice cream hardening refrigerator is sufficient to make this two or three hour break in operation unobjectionable.

We shall consider an installation of an ice cream hardening room with refrigerated ante-room.

SURVEY SHEET FOR ICE CREAM HARDENING ROOM AND ANTE-ROOM

	HARDENING ROOM	ANTE-ROOM
Size	8x8x8	8x8x8
Common walls	8x8	8x8
Insulation	6" cork*	3" cork
Outside temperature	90°**	90°
Inside temperature	0°	40°
Gallons of ice cream to be hardened per 24 hours	100	

* Except one wall will be 3" cork.
** Except one wall will be 40°.

* Author of Commercial Refrigeration and Comfort Cooling.

Load Calculations

(1) *Hardening room*—Surface (A) exposed to 90° = 320 square feet

Surface (B) exposed to 40° = 64 square feet.

From Table 25, factor for surface (A) is 1.4 B.t.u. per sq. ft. per degree per 24 hours, and for surface (B), 1.7 B.t.u. per sq. ft. per degree per 24 hours; plus 350 B.t.u. for every gallon of ice cream to be hardened per 24 hours.

Temperature difference (A) = 90°
Temperature difference (B) = 40°
Heat load (A) =
320 × 1.4 × 90 = 40,300 B.t.u. per 24 hrs.
Heat load (B) =
64 × 1.7 × 40 = 4,400 B.t.u. per 24 hrs.
Product load =
100 × 350 = 35,000 B.t.u. per 24 hrs.
Total load = 79,700 B.t.u. per 24 hrs.

TABLE 25—NON-PRODUCT HEAT LOAD FOR ICE CREAM HARDENING ROOM, EXPRESSED IN B.T.U. PER SQUARE FOOT PER DEGREE PER 24 HOURS. ADD 350 B.T.U. FOR EVERY GALLON TO BE HARDENED PER 24 HOURS.

INSULATION	UP TO 400 SQ. FT.	OVER 400 SQ. FT.
3	2.1	2.0
4	1.7	1.6
5	1.5	1.4
6	1.4	1.3

(2) *Ante-room*—Exposed surface 160 square feet (we may neglect the wall exposed to 0°). From Table 26, factor is 2.2 B.t.u. per sq. ft. per degree per 24 hrs.

Temperature difference = 50°
Heat load =
160 × 2.2 × 50 = 17,600 B.t.u. per 24 hrs.

TABLE 26—OVERALL HEAT GAIN FOR ANTE-ROOM, EXPRESSED IN B.T.U. PER SQUARE FOOT PER DEGREE PER 24 HOURS.

INSULATION	UP TO 250 SQ. FT.	OVER 250 SQ. FT.
1	3.3	3.2
2	2.9	2.8
3	2.6	2.5
4	2.2	2.1
5	2.0	1.9
6	1.9	1.8

Candy Shop

Chocolate coated candies of high quality must be manufactured in rooms where the temperature does not exceed 65°. Once manufactured, however, these candies can withstand temperatures as high as 85° without objectionable melting. Consequently, the refrigeration requirements of the candy shop are not as great as for the other shops we have considered.

If, however, the shop is to continue to manufacture candy during the summer months, a refrigerated chocolate dipping room is an absolute essential. Inasmuch as there are people continually working in rooms of this type, the equipment must be laid out so that the room is free from cold drafts. This involves the use of equipment with low cfm ratings.

SURVEY SHEET FOR CANDY SHOP

Size	4x15x10
Insulation	1" celotex
Outside temperature	100°
Inside temperature	65°
No. of people employed	5

A good selling feature for an installation of this type is to design a system which in the winter uses outside air to perform the cooling, and in the summer switches to mechanical refrigeration.

We shall consider a candy dipping room such as might employ four or five people. It is important that sufficient fresh air be added to properly ventilate the room according to the number of people employed. This adds an important item to the heat load, which we shall allow for by assigning a definite load to each person, which load will include both the heat given off by the person plus the heat of the fresh air which he consumes.

TABLE 27—NON-HUMAN HEAT LOAD FOR CHOCOLATE DIPPING ROOM, EXPRESSED IN B.T.U. PER SQUARE FOOT PER DEGREE PER 24 HOURS. ADD 1000 B.T.U. PER HOUR FOR EACH PERSON EMPLOYED.

INSULATION	UP TO 400 SQ. FT.	OVER 400 SQ. FT.
1	.17	.16
2	.14	.13
3	.12	.11
4	.10	.09

Load Calculations

Inasmuch as the dipping room is ordinarily not used for more than ten hours per day, we shall calcu'ate the hourly load, rather than the 24 hour load.

Exposed surface = 500 square feet.

From Table 27, the factor is .16 B.t.u. per square foot per hour per degree, plus 1000 B.t.u. per hour for each person employed.

Temperature difference = 35°

Heat load =

$500 \times .16 \times 35 = 2{,}800$ B.t.u. per hr.

Human load =

$5 \times 1{,}000 = 5{,}000$ B.t.u. per hr.

Total load = 7,800 B.t.u. per hr.

Fur Storage Establishment

The cold storage of furs during the summer months has become very popular within the past decade. The function of a refrigerated fur storage vault is twofold:

(1) To prevent the deterioration to the quality and appearance of the fur.

(2) To prevent the destructive action brought about by certain insects.

These results may be obtained by installing a refrigerating system set to maintain a temperature of 40°, but capable of producing a temperature of 15° at frequent intervals in order to kill moths or larvae. An alternate method which is coming into common use is to maintain a constant temperature of 40° and kill insects by fumigation.

We shall consider a two story fur storage vault used in conjunction with a fumigation system, which eliminates the necessity for sub-freezing temperatures.

SURVEY SHEET FOR FUR STORAGE VAULT

Size	40x20x20
Insulation	3" celotex
Outside temperature	100°
Inside temperature	40°

Load Calculations

Exposed surface = 4,000 square feet.

From Table 28, overall heat load factor is 2.4 B.t.u. per square foot per degree per 24 hours.

Temperature difference = 60°.

Heat load =

$4{,}000 \times 2.4 \times 60 = 576{,}000$ B.t.u. per 24 hrs.

TABLE 28—OVERALL HEAT GAIN FOR FUR STORAGE REFRIGERATOR, EXPRESSED IN B.T.U. PER SQUARE FOOT PER DEGREE PER 24 HOURS.

INSULATION	UP TO 1000 SQ. FT.	1000-2500 SQ. FT.	2500-4500 SQ. FT.	OVER 4500 SQ. FT.
2	3.5	3.4	3.2	3.0
3	2.7	2.6	2.4	2.2
4	2.4	2.3	2.1	1.9
5	2.1	2.0	1.8	1.6
6	1.9	1.8	1.6	1.4

Hotel, Hospital, or Institution

Hotels and institutions represent the most complicated form of commercial refrigeration installations. Establishments of this type usually contain a group of centrally located walk-in refrigerators, with or without reach-in cabinets scattered throughout the building. Fifteen or more refrigerators in a single edifice are not unusual, for it is important to have small local supplies of food available in addition to a large central supply.

The sales presentation for a job of this type must be built up a bit differently than for the average small installation. Of utmost concern to the purchaser are (1) freedom from possibility of complete breakdown of the system, and (2) economy of operation. This means that the installation must be engineered in such a manner that emergency refrigeration can be supplied regardless of the failure of any individual part of the system. Also an extensive system of controls must be provided to insure that unnecessary and wasteful operation does not take place.

Load calculations for an installation of this type have been covered in previous problems, and need no further discussion. It is suggested however that the total load be divided between two or more condensing units which may be cross connected, so that the load of one may be carried by the others in case of breakdowns.

Packing House

The problems presented by the packing house are indeed nothing more than an enlargement of the problems of the small meat market. For general storage, a number of rooms kept at 36° F and 90% relative humidity must be available. For frozen products, 10°-20° refrigerators are needed. Depending on the particular products of the packing house, rooms maintaining other storage conditions will also be necessary.

Due to the unusually large amount of usage which packing house refrigerators undergo, the refrigeration load is somewhat greater than would be arrived at by ordinary methods of calculation. The salesman should bear this in mind, and point out to the packing house owners that he is taking this heavy usage into account. Also, it would be well to figure on a dual compressor system, so that refrigeration would not have to be discontinued completely, should one compressor break down.

Beer Station

In the process of distributing beer from the brewery to the retailer, it has been found more economical to set up a series of local beer stations in the territory served by the brewery. Weekly or bi-weekly shipments of barrels of beer are made by the brewery to its local stations, whence daily deliveries are made to the customers. By shortening the distance between storage refrigerator and retailer, the temperature rise of the beer is minimized.

Due to the rapid turnover of draught beer at peak seasons, the refrigerating equipment must be of ample capacity to cool the maximum incoming load to 40° in no more than 24 hours. Forced air systems are very effective in producing these results. Quick cooling is the sales story!

Computing Selling Price

In spite of the fact that every salesman feels that his own method of price calculation is by far the best, the author takes the liberty of suggesting the following method:

(1) Add together
- (A) cost of lowside
- (B) cost of highside
- (C) cost of valves, controls, and tubing
- (D) cost of installation.

This gives total equipment and labor cost.

(2) Multiply by factor to provide for desired mark-up.

This gives equipment and labor selling price.

(3) Add to this
- (E) cost of service for guaranteed period
- (F) commission for salesman.

This gives total selling price.

B-r-r-r, 115 Below Zero

Service Engineer Obtains 115° Below Zero with a Freon System

Charles C. E. Harris of Harris Refrigeration Co., Cambridge, Mass, tells an interesting story of an unusual refrigeration application. This application is a fine example of what can be done by the service engineer when he applies himself to the unusual problems of the industry, and we quote the following, just as Mr. Harris related it. —Editor.

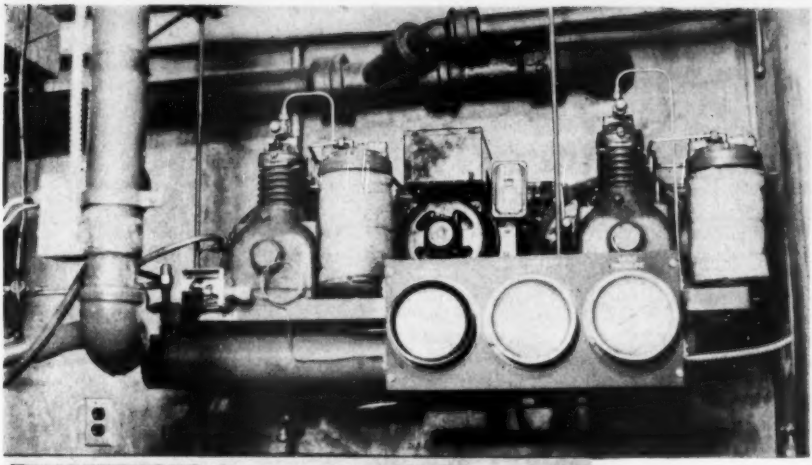
"ABOUT a year ago, we were requested by the Massachusetts Institute of Technology to cool a section of a vapor trap to minus 70° F. We informed the Institute that an application of this kind requiring such low temperatures was entirely out of our field, but because my curiosity was aroused, and because I was interested in finding out how low a temperature could be obtained using Freon as the refrigerant, I decided to do some experimenting. The result is that during the better part of the past year, we have supplied trouble-free refrigeration for the Institute.

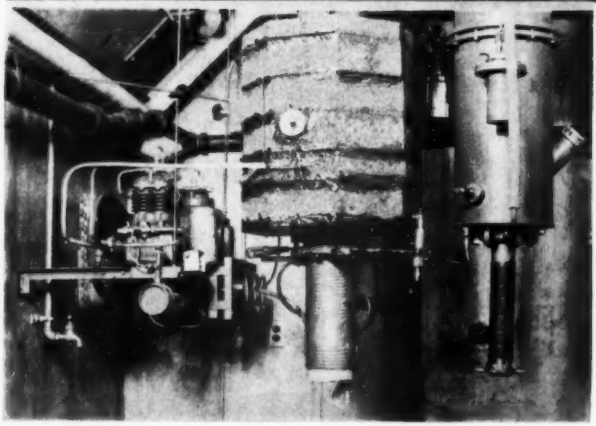
"At the beginning of the experiment, we used a standard compressor, speeded up to its maximum speed. We found we were able to obtain —50° F., which seemed promising enough to warrant further investigation. Next, we hooked up a two-stage unit, with which we obtained temperatures around —100° F.

"In all of these experiments we were assisted by C. M. Van Atta of the Research Laboratory of Physics, Massachusetts Institute of Technology. At this stage of our experimenting, the results looked so promising that Mr. Van Atta commissioned us to built a unit for installation in the Nuclear Research Laboratory.

"Using some equipment we had on hand, we built up an angle iron base and mounted on it two model F Kelvinator compressors with a ¾-h.p. motor between them to drive both compressors. Both compressors are driven at the same speed of 560 rpm. However, if, in the future, we are required to build another such unit, we will provide a larger compressor for the first stage, or the first stage will be driven at a higher speed. A standard condenser and receiver were mounted on the back of the unit.

"Being afraid of oil trouble in the low side at such low temperatures, we installed





EQUIPMENT WITH WHICH —115° WAS OBTAINED

The above view shows the condensing unit built by C. E. Harris for the Massachusetts Institute of Technology. The compressors are twin cylinder Model F Kelvinator with oil separators at the side of each. The lower view shows the insulated vapor trap which is held at —70° F.

an oil separator in the discharge line of each compressor. These separators have done their work so well that upon inspection of the oil level in each compressor after a six-months run of the unit, we found the second-stage compressor had accumulated a small additional amount of oil, but nothing to worry about.

"The cooling coil consisted of approximately 25 ft. of ⅝" tubing wound around and soldered to a six-inch steel tube. A heat exchanger was used, and the entire coil was covered with at least six inches of cork.

"After experimenting with an automatic expansion valve, the refrigerant control was finally obtained by means of a hand-operated needle-valve, which Mr. Van Atta had made. This valve proved to be quite a satisfactory method of controlling the flow of refrigerant to the coil, its main disadvantage being the necessity of adjusting while the temperature was being reduced each time the unit was started.

"The unit is required to run continuously; therefore, no automatic control is provided. A rather unique safety control, however, was provided. In the illustration of the unit, it will be noticed that three gauges are mounted on the machine. Two of these are suction and pressure gauges, the third is a 800-pound pressure gauge. Connected to this pressure gauge is a length of tubing wound around the steel tube being cooled. The gauge and tube were evacuated and charged with CO_2

vapor to a pressure of 300 pounds. The gauge was then recalibrated with the corresponding temperature for saturated CO_2. The arrangement proved to be a remarkably accurate and sensitive dial thermometer.

"While the work of installing this device was going on, we discovered that if the temperature of the trap was allowed to rise to —40° C., mercury would be drawn out of the trap by the vacuum pump connected to it. We noticed that the pressures within the dial thermometer, at the temperatures required in the trap, were within the range of a standard high pressure cut-out switch; therefore, in order to protect the system during periods when no one was in attendance, we connected a high-pressure cut-out switch into the CO_2 line of the thermometer and adjusted the switch so that it would cut out the vacuum pump when the temperature went up as high as —40° C. Had it been necessary to operate the machine automatically, it is probable that another control could have been connected in the same manner to control the off and on periods of the condensing unit.

Moisture Problem

"After the construction of the unit was completed and we were ready to charge it with oil and refrigerant, we realized that extreme care must be taken with moisture. A Kinney vacuum pump was made available to us, and with it we were able to pull very close to a maximum vacuum on the system over a period of 36 hours. The Freon refrigerant and Texaco Capella B oil were introduced through dryers. A slight difficulty was experienced in adjusting the hand-adjusted needle-valve, and we were never able to determine whether this was due to congealing oil or moisture. However, we added about 20 cc. of alcohol, and surprising as it may seem, we have never experienced trouble from moisture or oil since.

"The only trouble experienced so far was in the first-stage compressor. The suction pressure in the evaporator is 26 inches vacuum, and the discharge pressure of the first-stage compressor is 22 inches vacuum, therefore, the pressure differential across the first compressor is only four inches. Due to this small differential, the piston valves had a tendency to stick to the retainers. This was eventually overcome, however, by changing the design of the valve.

"It was during the course of this trouble that we set up and experimented with another unit in our shop, so as to be ready with a replacement unit in case one was needed. A Kinney pump was used as the first-stage compressor on this second unit, and a model 206 A-P thermostatic valve was used on the coil. With this set up, we found the mercury on the thermometer at —115° F. and it was racing past this mark as we pulled it out to read it. Having experienced such good results on this test with the thermostatic valve, we later replaced the hand-adjusted needle-valve on the original system with an A-P thermostatic valve, where it is now a permanent part of the installation. It does a perfect job, and, of course, eliminates the time spent in adjustments while the temperature is being brought down after a shut-down.

"For about the past six months, no attention has been paid to the machine, apart from checking temperatures, and the system has been fuctioning perfectly. For this reason, it is felt that a general check-up about every nine or ten months in the future will be all that is neecssary."

MOTOR CAPACITOR FAILURES DUE TO MISUSE

TO safeguard users against premature motor-capacitor breakdowns, Aerovox Corporation is now using a "Caution" label on its units with the following advice:

Failure of centrifugal switch or relay to disconnect or kick off within rated three seconds' starting time will cause capacitor to break down, because if excessive time voltage is applied, electrolytic capacitors cannot withstand starting periods exceeding three seconds, nor voltage exceeding 138.

Increased starting time may be due to failure of centrifugal switch or relay to disconnect capacitor from line. This may be caused by (1) mechanical failure of switch; (2) excessive load on motor because of sticky compressor or perhaps dry motor bearings.

Another cause for capacitor failure is improper adjustment of thermostat or refrigerator valves, causing too frequent starting of motor. Electrolytic capacitors cannot be used for more than 20 start-stops per hour.

Don't apply this capacitor before you have checked (1) centrifugal switch; (2) easy-turning of motor and compressor; (3) thermostat and valves.

The Servel Supermetic

By P. B. REED*

SERVEL, it will be recalled, was one of the pioneer manufacturers of household hermetically-sealed refrigerators. These were discontinued to make more plant facilities available to the manufacture of rapidly swelling production of the absorption type. Realizing, however, that the self-contained commercial fixture would eventually call for many applications of small commercial sizes of hermetically-sealed units, study and development of the sealed type was continued until now, drawing on that fund of experience, Servel has designed and now has in limited production a line of Supermetics, hermetically sealed condensing units for small commercial applications.

Design Factors

Several factors affecting the design of a condensing unit are even more necessary for self-contained than remote installations: compactness, quiet operation, freedom from vibration and trouble-free usage. These factors have been incorporated into the Supermetic to a high degree. The ⅓ hp. unit is only 11⅛ inches high, 13½ inches wide and 18 inches long. The dimensions of the ½ hp. unit are less than an inch greater. Due to precision processes used in its manufacture, diamond finishing, grinding, honing and the newer superfinishing, extremely close limits and tolerances are maintained so that as a result, Supermetic is very quiet in operation, comparing favorably even with household hermetics. Much care has gone into balancing parts both statically and dynamically and to resilient mountings to give smooth vibrationless operation. Self-contained or package type equipment is frequently installed miles away from the nearest available service agency and freedom from maintenance or need for repairs or adjustments is highly important, and no expense has been spared to build a product of the highest quality of dependable and tried design.

As will be observed in Fig. 1, the power unit (motor-compressor or sealed mechanism) is the horizontal type with the motor case separated from the compressor proper. Referring to the cross-sectional line drawing, Fig. 2, it will be seen that the suction gas enters the motor (front) end of the power unit through a cylindrical strainer which is capped on the inner end and so that some oil separation is obtained by impingement. The gas has two channels through which it passes to the compressor. Most of the gas passes through horizontal holes (5) in the rotor and thus cools the motor by contact with the cool gas; the oil and some gas passes through a passage

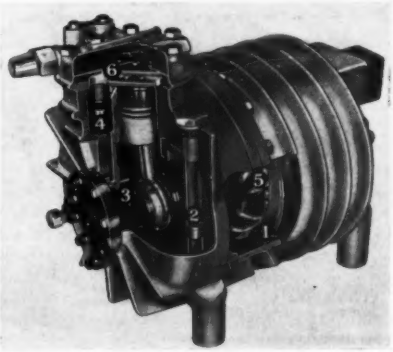


Fig. 1—Cut away view of motor and compressor.

cored in the bottom of the motor case to the tube (2) in the compressor crankcase. It will be observed that the motor case and the compressor crankcase are separated so as to keep the motor free from oil or liquid which would result in higher wattage usage.

From the motor case the gas and oil pass through the tube (2) in the crankcase, to the oil separation chamber and from thence, through cored passages to the valve plate (7). In the oil separation chamber the oil is dropped out of the gas and passes through the oil check valve to the oil reservoir in the crankcase. By reason of the check valve, oil cannot pass back up to the valve plate and cylinders on quick pull downs or

* Service Manager, Servel Inc., Evansville, Ind.

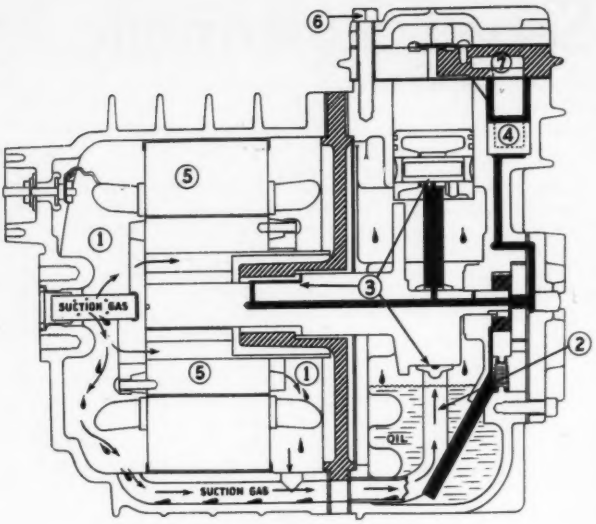


Fig. 2—Line drawing of power unit.

other conditions on the low pressure side of the system that cause oil slugging or oil pumping, as it is sometimes called. This is the same sealed crankcase construction that has been used in all Servel compressors for 20 years, and the usefulness of which in preventing oil slugging, pounding, damaged bearings, bent or broken rods, shafts and valves has been amply demonstrated.

The valve plate is the cored type with the suction and discharge gases in separated cored passages. On the downward stroke of the piston the suction gas passes through a flapper type suction valve on the underside of the valveplate into the cylinder. On the upward stroke of the piston the compressed gas passes up through the plate and through flapper type discharge valves out to the condenser. The valve plate and suction and discharge valves are the same types that Servel has used and found successful for years. The piston carries two compression rings which although not needed during the first six months or so of the compressor's life insure years of efficient compression, without loss of capacity or efficiency.

Full forced feed lubrication by a positive pressure oil pump gives complete lubrication to all bearings—main, eccentric and piston pin bushings. Under normal operation the oil pressure is from 15 to 20 pounds per square inch. The oil pump is the rotary squeeze-type identical to those used on Servel compressors for years. Main bearings, eccentric rod and piston pin bushings are all of low friction metals — copper-lead, bronze-lead or bronze, on superfinished steel shaft, eccentric and piston pin. Accuracy of size of parts is held to such close limits and tolerances that it is unnecessary to resort to selective fitting in assembling them. This is of interest to the Service Engineer since a replacement part fits without "matching" it to another part.

It will be noted that the valve plate assembly may be removed and repaired or replaced in the field just the same as on Servel belt-driven units. The same is true of the oil pump or the unloader piston. It is also quite possible to entirely disassemble the power unit but unless a well equipped shop is available the Servel service department recommends that the power unit be returned to the factory for major repairs. It has been their experience that the service engineer does not as a rule find it profitable or desirable to do any work on bearings, pins, eccentrics, etc. He will however find it helpful to be able to remove a small piece of foreign matter from a discharge valve instead of sending the whole power unit back to the factory although he may still do the latter if he so wishes.

When the compressor is not running, the unloader piston (4) is in the down position and the by-passage from the cylinder to the suction passage in the compressor is open so that when the compressor starts the gas in the cylinder is not compressed but is merely by-passed back to the low pressure side. Thus the compressor starts without load. After the compressor has started, the oil pressure builds up and the 15-20 pounds pressure pushes up the unloader cylinder which closes the by-pass and the gas in the

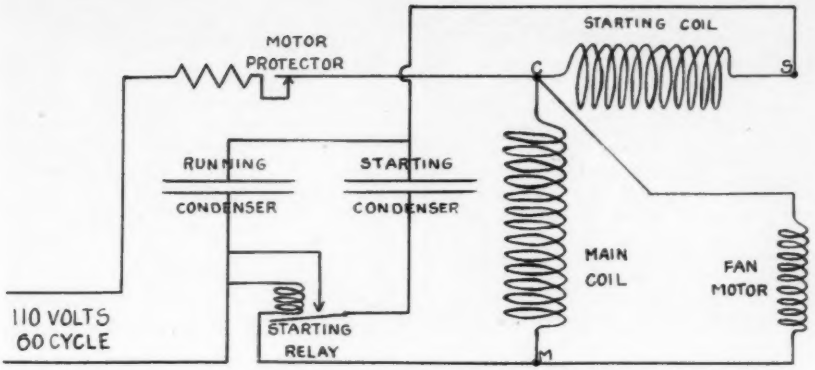


Fig. 3—Wiring diagram of Servel Supermetic.

cylinder is compressed and passes out to the condenser through the discharge valves in the usual manner.

The motor is the condenser-start, induction-run (except the ⅓ and ½ hp. sizes which use a running condenser also). The starting condenser is in the circuit when the motor starts but as soon as it gets up to speed the starting condenser is cut out by a relay as shown in the wiring diagram, Fig. 3. This relay is mounted on the connection box and is equipped with prongs like a radio tube so that it can be changed in a few seconds without danger of making a mistake in reconnection. The starting and running condensers are standard types, widely obtainable.

By using the unloader and a condenser type motor, the Supermetic can be used with any type of liquid control, automatic or thermostatic expansion valve, float valve or capillary tube. It will start under full load conditions even though—on a 110 volt line the voltage is as low as 90 volts. The motor is protected against damage from overload, undervoltage and overheating by a motor protective device of the inverse time element thermal relay type mounted

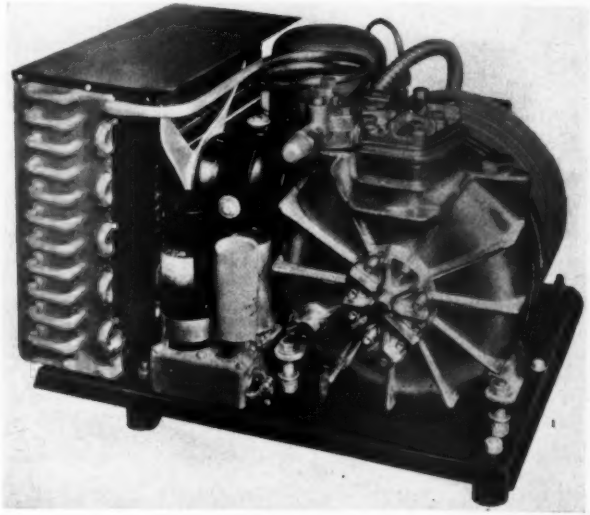


Fig. 4—The Supermetic carries a warranty of fifteen months from date of shipment against defects in material or workmanship and in addition a four-year replacement plan on the power unit is available. The line is now offered in six models: LCC-20F, LDD-25F, LEE-33F low temperature (0°) 1/5, ¼ and ⅓ hp. respectively and MCC-25F, MDD-33F, MEE-50F, medium temperature (20°) ¼, ⅓ and ½ hp. respectively. All are for Freon-12 only.

on the front end of the motor case and enclosed so that it is affected both by excessive current flow and/or motor heat. From the protective device the current passes through the case by means of three sealed-type insulated connectors. The stator winding of the motor is wound with copper wire insulated with a highly efficient synthetic enamel-like covering which is impervious to refrigerant or oil but not to some of the "liquid drying agents." Therefore, only Freon-12 and Servel approved oil should be put in a Supermetic.

The three-pass condenser core is generous in size and surface so as to give low head pressures even in warm machine compartments. The fan is the suction type which, with the aid of the steel shrouds, draws its full air stream through the condenser, thus giving even distribution of air over and through the face area of the condenser. In this way the air also helps to cool the fan motor and power unit. The fan motor is the shaded pole type that has no brushes or starting mechanism to get out of order. It is equipped with pre-oiled bearings that need no attention for several years.

The receiver is a vertical, drawn steel shell with capacities of 3½ pounds Freon-12 on the 1/5 and ¼ hp. and 6½ pound Freon-12 on the ⅓ and ½ hp. models. As are all receivers used on Servel machines, Supermetic receivers are equipped with a liquid level test cock. If liquid Freon-12 can be drawn from this test cock when the machine is running normally, a full charge with a small reserve is definitely proved. Service engineers will appreciate the usefulness and savings in time afforded by this original Servel feature.

NEW POLISH FOR REFRIGERATORS

A NEW polish, designed for use on electric refrigerators, ranges, cabinets, mangles, and other enameled household equipment, has been developed by chemists of E. I. du Pont de Nemours & Company. Described as a scientific blend of cleaning, waxing and polishing ingredients, the polish cleans the finish, depositing at the same time a thin protective wax film which can be brought to a high luster.

The new product is recommended for the white "Dulux" synthetic resin enamels also manufactured by Du Pont and widely used on refrigerators and other household appurtenances. It can also be employed on lacquered or enameled metal surfaces, although it is not recommended for the older-type varnished finishes.

Tests show the refrigerator polish effective in removing stains, dirt and grease commonly encountered in active wear. After application, the finish can be kept clean by wiping with a cloth just as the luster of a waxed automobile finish is renewed. The use of the polish eliminates frequent cleanings with soap and water, and helps preserve both the beauty and wearing qualities of the finish.

A. H. Williams
Pennsylvania.

I always look forward for the next month's issue, as they seem to be more interesting every time I receive one.

REFRIGERATION ON WHEELS

An interesting truck trailer unit is used by the International Harvester Company branch in Denver to demonstrate their refrigeration line throughout that territory. A large Fruehauf van trailer with a side door houses the exhibit. A compressor unit is mounted behind the International tractor. Within the trailer are such units as a milk cooler, walk-in box, reach-in box, beverage cooler, milking machine, cream separator and power unit. There are even staircases and handrails to make entrance and exit easy from the rear and side doors. This trailer is used in conjunction with the regular power farming demonstrations to International Harvester dealers as well as to make actual demonstrations to prospective customers right on their own farms.

COMMERCIAL

INCREASE BUSINESS BY DOING A MORE EFFECTIVE JOB OF SELLING *Selling*

Service Is a Business

*By C. B. Herbert**

THE service operator is a businessman. You who own and operate your own refrigeration business—either a sales and service business or a service business exclusively—should consider yourselves business men of the community in which you live.

It is important that you feel that you are a business man and act as such. Though your business be small, you are just as important to yourselves as the most famous surgeon or banker in your community. The reason that your business is small is because the demand for your type of service is small, but the time is fast approaching when the refrigeration business man will become an important cog in the life of the community; and, with a justifiable pride in his business he is bound to be respected by his associates.

There is no black magic about the refrigeration business, and most of you are aware that your customer, in a great number of cases, will talk to you regarding the mechanical side of refrigeration. Practically every customer is conscious of the need for good refrigeration. For that reason the refrigeration business man should be more in business than ever before.

*Herbert Refrigeration, Waterloo, Iowa.

As a business man in the community you are invited to take part in various community activities. By the fact that you are a business man, you become affiliated and associated with the other business men of the community who, after all, are the reason there is a community. It puts you on a common footing with the big business men of your community, and you are in a position to discuss problems of community life with the other leaders, and your opinions will be respected.

Practically all service clubs in community life are a representative cross-section of executives of various types of businesses. These clubs generally meet once a week at luncheon, and are not above your standing in the community, but are more or less like ourselves who may own and operate a small or a large business. They meet for good fellowship with the thought in mind of improving the moral and social status of the community. Your association with other business-men on a fellowship basis once a week will improve your outlook on life and in various ways will tend to command respect among your clientele. It is true there is expense involved, but if you will measure the gain, the personal satisfaction, the recreation, and the assurance of the future you obtain from these associations, the expense is small.

Business Policy

Another, and probably the most important phase of the refrigeration business, is termed "Business Policy." Probably the most perfect form of business policy would be a complete application of the golden rule. However, the golden rule is general and a business policy must be expressed in details. It must outline your policy as to guarantee

of labor, parts replacement, business attitude, credit details, discounts, prices, and delegation of responsibility within your organization which should, in a measure, control your book accounts. In other words, it is the constitution governing your business life and the adherence to this constitution, with necessary amendments will determine the length of your business life. Some of you are perhaps contemplating going into business for yourself, or are in business now. You should write a business policy, and in such a manner that all of the personnel will understand it, and in this way, each employee will be well informed as to your attitude on various phases of the business, so that in your absence, a decision satisfactory to you can be reached. Any deviation from the policy must require special attention by yourself, who alone is responsible for the terms of your business constitution. It will, in a large measure, control your profits—always reminding you in your weak moments.

Business Records

Business records are so important to business men that statisticians have made various statements regarding the importance of records, to the extent that it is conceded by far the majority of business failures today occur in businesses that keep no definite record or records without a purpose.

It is compulsory for business men to keep records of business transactions for tax purposes. Some business men, to make out income tax reports, will spend a great deal of time and an unlimited amount of energy in an effort to render a tax statement that is passable; but, in the back of their mind, it will worry them because they will not be sure as to the correctness of the story which they tell in their report.

But, taxation is only a very minor use of business records. The time will come, if you have not already experienced it, when your business records will serve to obtain credit for you when the outcome may mean success or failure for your business. The man from whom you buy your supplies, the banker who handles your sight drafts or sales contracts, and the finance company all use one form or another of credit reference, and in most cases, a reference directory sold commercially to businesses and compiled from surveys and investigations made by these companies. If you, as a business man, can show a set of business records that are adequate to their investigator, he will offer you suggestions in a number of ways, and help you to establish yourself for credit purposes.

The most important part of business records is an establishment of costs which will actually tell you whether or not you made money. You may feel that you can look down in the old sock, or at the stubs of your check-book and see a balance, but do you actually know how much it is, or how much you owe? Can you sign an affidavit today and truthfully make a statement as to your accounts receivable, your accounts payable, your merchandise inventory and your depreciated equipment inventory? With adequate systems of business records, you can do just that. It takes the guess out of business, and sometimes tells you a discouraging story. But, if you have what it takes to be a business man, it will guide you in eliminating your deficiencies, and cause you to exert your efforts at the weakest point with ultimate success.

The writer is in no position to recommend any particular form of business records, but a practical way for you to establish a system of record-keeping is to write down all of the answers that you would like to know regarding your business conditions and contact a competent supplier of bookkeeping systems, who will establish your records in a manner that your business conditions may be analyzed daily, weekly, or monthly, as you wish. Please remember that as a business executive, it is correct answers that you desire for guidance.

Service Operations

With the personal attitude of the constitution and the adequate records established, we now arrive at the problem part of your business — service operations — which are justifiably and ably stressed by good refrigeration businesses. From a profit standpoint your service may be good or bad, depending entirely on your ability to organize yourself and your work so the efforts of your personnel will be efficiently rendered.

Remember that a serviceman in the field is practically his own boss. He has to make decisions of a business as well as a mechanical nature. If you are a serviceman, the business decision in the field and the mechanical ability is all up to you. But, there is someone besides yourself operating this business, as the telephone must be answered.

When you employ a serviceman, you think first of his experience, second—his me-

chanical ability and third, his personality and capability to get along with the customers, and along with this, honesty, industry, sales ability and a number of other characteristics which a serviceman, to be worthy of the name, must possess.

It is often the case that we find personality and ambition, together with general intelligence and salesmanship, preferable to experience, because experience alone is not enough.

Most of us have spent more or less time in the employment of someone in the refrigeration business. Practically every one of us has been engaged in service work as a mechanic; we learned the fundamentals of refrigeration work in practice and we are able to assist our employees in diagnosing various troubles encountered. So, we find that intelligence in the service department is the profitable characteristic, one easy to maintain and improve upon. It can be accomplished by intelligent study and reading, attendance at various trade meetings, and the exchange of ideas, the cost of which is very low.

If you are an experienced operator, your service shop is a wonderful sales room. Good shop equipment, arrangement and careful use of paint, and the diligent use of a broom will pay dividends. It will instill confidence with your customer to get the overhaul job, if your shop is clean and properly equipped. If you must save old inoperative switches, etc., establish a morgue or mystery room with a lock, so that your customer will have no reason to lose confidence in the good points of your shop. Consider it as a sales room and have the atmosphere of the shop one that will inspire, rather than depress your customer. Remember, the refrigeration equipment that you are discussing with the prospect may be the only equipment that he owns, and in his mind the best. You will unconsciously do better work and the customer will gladly pay a better price with more satisfaction for both. Some business men succeed on their ability to collect bills. It is a point of vital importance. You are selling labor—time by the clock. To us who pay the weekly salary checks, it is tangible; to your customer it may be untangible. Therefore, your services will necessarily be on more of a c.o.d. basis than your merchandise sales that may be repossessed.

A plan that has proven successful is the payment of collection commission to the servicemen for collection when the work is finished, which reduces office expense. It is a good plan to itemize your receivables each month according to the age of the accounts and press collection on those accounts which are more than 30 days old. A complete analysis of your accounts receivable each month with an elimination plan as they are paid will help you considerably in establishing the credit possibilities of various accounts, and will tend to develop a credit-conscious attitude among the personnel. After all, it is not your money until it is in your bank account, and sometimes a pessimistic atttitude is profitable. It is said that a customer is as good as he pays.

We hear and see a lot about advertising. The refrigeration business has problems in advertising which are very much the same as for other service businesses. Care in spending money for advertising is very important. We have made an attempt to analyze the profitable advertising phases in our particular locality. This, of course, will differ slightly with the community. The most profitable to us in the rotation named are:

1. Telephone directory
2. Service labels
3. Direct mail
4. Personal contact
5. Truck
6. Word of mouth
7. Business location
8. Newspaper
9. Invoice stuffers

These are classified according to their relative costs and the results obtained. It may be possible to get more business by newspaper advertising than by direct mail. However, in the consideration of profit, it is our finding that, for the money spent, direct mail is more profitable; hence, the classification.

Salesmanship

We all sell something, and our ability as salesmen offers confidence and earning power. In your refrigeration business, if you sell service, at sometime or other, you have the opportunity of selling a finished product. Take into consideration that many organizations live and thrive from this phase of the refrigeration business only. Your opportunity in the sales field is great, and your chances of maintaining the profit in the service business are greater than those of the concerns who depend on sales alone for a living. You have the customer's interest at heart, and he trusts you when you advise sincerely that the old equipment is inadequate for his personal needs today. There is no reason for you to sell at a lower price than the sales organization, as you have

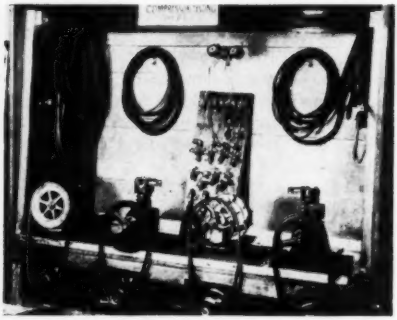
(Continued on page 29)

★ As you step into the office of the M & R Refrigeration Service Co., you are immediately impressed with the business-like atmosphere of this service organization. The Service Dispatcher may be seen at the rear of the office.

Streamlined Shop M

AT THE beginning of 1931, when the depression was at its height, two young men started out to build a refrigerator repair shop that would do the most for its clients. They realized that building management jeopardizes its own position when apartment house tenants are angered by the breaking down of a refrigerator.

Projecting this realization of the customer's problem they knew that everything planned or ever done within their own organization would have to be based on repairing a refrigerator quickly . . . and repairing it well.



★ Each department is segregated and special equipment required is conveniently located. The run-in bench, for example, is protected so that excess oil splash is confined to the enclosure and is immediately drained off.

So with this objective Ed Merenda and Ted Reina set out. Not very pretentiously . . . only small basement space. Guided by a fixed policy of constant improvement, it was inevitable that they would grow to the point where today they operate what is undoubtedly the most comprehensive refrigeration service organization in the Metropolitan New York area.

Today M & R Refrigeration Service Company occupies 15,000 square feet and is replete with the most modern equipment a repair shop could desire. They have developed on their own initiative an intricate unit whose function is to reclaim the gas contained in units sent in for repair.

Entrance into their modern offices emphasizes the keynote of cleanliness that permeates the entire establishment. The shop, itself, is cleanly cheerful. It cost a little more to offix the "extras" to this shop but Ed and Ted, apart from personal pride, feel the clean and orderly atmosphere of the shop reflects itself in the caliber of the work the men produce. Celotex ceilings deaden the inevitable noise accompanying shop workings. The Cooper-Hewitt overhead lights are spaced closely to furnish maximum light under all conditions without eye strain for the shop men. Compactness of equipment is best illustrated in that the main work bench occupies the center of the floor of the shop

★ Part of the M & R field service organization, neatly uniformed and with adequate supply of replacement parts to handle the routine problems encountered in the field.

M & R sees to it that their customers receive prompt and satisfactory service.

p Merchandises Service

thus leaving ample space all around the bench to permit perfect freedom of movement for the personnel.

And this feeling of roominess aids the men in concentrating on the task in hand. The compressor run-in bench with its normal tendency to be one of the untidiest corners of a refrigerator maintenance shop is kept clean by the simplest arrangement. A backboard and overhead hood of metal has been placed around this unit so that oil splash is confined. This oil does not accumulate as it drains into a bucket. There are thirty unit testers that reproduce exactly the conditions under which a refrigerating unit will operate when it is in use in the field. With this as a basis, expert diagnosticians then ascertain the particular "root of evil" and the refrigerating unit then goes into the production line for the necessary overhauling.

Adjacent and convenient to the machine shop is the parts room with its full complement of the necessary materials to replace in the most cantankerous of refrigeration motors. The various replacement parts are neatly shelved in their individual wall cubicles with readily identified labels. No part leaves this room without a slip noting what has been removed so that the office has a closely controlled check on their perpetual inventory of materials on hand —materials in use—or need replenishing.

★ Thoughtful planning with a desire to serve better resulted in building up a good service business, as well as contributing to more efficient production.

★ A view of part of the M & R Shop, with divided work benches for each shop operation. Proper lighting, modern shop equipment, and acoustically-treated ceilings contribute to better workmanship.

CO-PARTNERS, M & R REFRIGERATION SERVICE

E. J. MERENDA
Production Engineer

T. REINA
Business Management

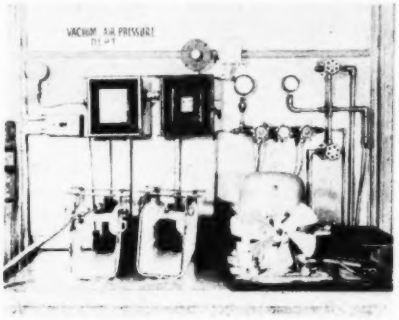
The balance of the shop equipment is modern to the "nth" degree right down to the burnished wrenches the men use. Safety precautions for the men are evident in every operation and it is the boast of M & R that not one of their employees has ever had an accident while on the job.

The management of the M & R Refrigeration Co. long ago realized that to keep their growth healthy and in bounds the controlling factor of all operations would have to be rooted in a system—practical, efficient, not-too-detailed, and flexible. And this basic system would properly catalog the full extent of services they could provide for building management.

Each Partner's Function

This being the age of specialization, Mr. Reina supervises the administrative functions and Mr. Merenda is the production engineer. Under an internal shop foreman there are sixteen specialists in refrigeration devoting their time constantly to repairing the more intricate jobs. In addition there are fourteen outside service men who operate as so many "first-aid"specialists. Each outside man is adequately equipped with replacement parts to handle the more routine problems encountered in the field. This is to aid building management in meeting their tenants' desires quickly and completely.

The entire engineering operations are hinged on two simple job routing cards. For instance, a phone call will come from a client. A card is immediately filled out containing the vital information and the general nature of the complaint. This card is turned over to the outside service man who makes the call. When the refrigerator is placed in working order again the service man turns in his report on the same card which furnishes all the necessary facts for office records, billing, etc. When other units are brought into the shop direct a big work tag is affixed to each motor at once. This card indicates the general



★ **All through the M & R Shop, each operation is departmentalized. Individual departments, such as the above, contribute much to the overall efficiency of this shop—"Streamlined for Service."**

nature of the complaint which is checked and confirmed or altered after leaving the testing tables. Once the problem is defined the motor goes through the routine of production and space is left on the card for every handler of the unit to note what he contributed to the repair of the particular motor in question. And from these simple cards, later analyzed and filed in the office, is the key control to all the operations of an organization that numbers over forty-five individuals today.

Messrs. Merenda and Reina make every effort to insure the general welfare of their employees fully aware that from these men really spring the continued foundation for their own success. There is a cozy recreation room for the employees permitting them a thoroughly relaxing break in the course of a day's labors. Their safety precautions mentioned previously speaks for itself and the essence of their personnel relations may best be discerned in the unusually low labor turnover of their organization, another contributing factor to a low cost operation.

★ Refrigerant charging board. Here units are conveniently and correctly charged.

Service Is a Business

(Continued from page 25)

personal services to give with the product you sell. This, in a large number of instances, is the reason you are given the opportunity to sell finished products. Customer confidence is your greatest asset, and careful handling of it will increase your financial gains. It is entirely possible to become affiliated with a good product and build up a following that is enviable, while constant changing from one product to another will eventually bring you a less profitable class of business.

The purchasing phase of your business is last, but not least. It is so important that it is impossible here to express all of the reasons why you should purchase this item and not that item. Take into consideration that you may receive a wonderful offer if you will purchase a certain quantity of various items that may not become obsolete before your supply is exhausted. If you will discuss the stocking of various parts with the jobber who calls on you regularly, he will, undoubtedly, point out which are fast-moving items and which are not. If a saving can be effected on a fast-moving item in the purchase price, and also a saving in freight and handling charges, remember, this is an additional profit for you and will tend to offset some of the expense that you may have in stocking slow-moving items.

An inventory record of parts in stock may save you the embarrassment of duplications in purchase with the resulting loss of time on the job, or the fact that you may be forced to carry the other items in stock for an indefinite period, and an investment in parts is money which may be used to advertise in some other phase in your business. Gain the confidence of the jobber from whom you purchase. You will be surprised at the service he will render you, not only in prices, but he is a salesman, and if you do not derive direct benefits from his contacts, he will discuss problems of the business with you; you will find him happy to cooperate, and he will sell with you, not to you. If a price is out of line, don't go elsewhere without analyzing his reason for his price structure, as he, no doubt, has a reason that will probably offset the purely price-minded distributor's sales argument.

The refrigeration business is in an unstable condition and a lot of new faces are coming and going. It will be some time before the business is stabilized to the extent many are today, but by the efforts of us men, who are the backbone of the refrigeration service industry, it will undoubtedly result in stabilized jobber and dealer programs that will be profitable to all concerned.

The Question Box

Readers are invited to send their problems pertaining to the servicing of household refrigerators and small commercial refrigerating equipment to "The Question Box."

CHILLING AND HARDENING ROOMS OFF BALANCE

QUESTION 430: I wish some advice on a 4 x 4 Frick Compressor operating an 80-quart-an-hour ice cream freezer. It has a ½-inch expansion valve. There is a hardening room with 500 feet of shelf coil, in which the temperature maintained is five degrees below, and a chilling room, in which the temperature desired is just above freezing. The hardening room and chilling room are joined by a door between them. Each room has a ½-inch expansion valve. The hardening room operates the machine by a thermo cut-out switch, and this room is o.k. The chilling room is operated by a ½-inch expansion valve on only about 40 feet of one-inch coil, and the hardening room does not require the machine to run enough to keep the chilling room cold. This 40 feet of coil in the chilling room is connected to the suction line leaving the hardening room.

How many ½-inch expansion Alco valves can be operated on the 4 x 4 Frick ½-inch liquid line on this hook-up? Both rooms must be shut off when the ice cream freezer is in operation. Would my best hook-up be to connect both coils, using one expansion valve? Would it help me if I enlarged my liquid line from ½-inch to ¾-inch?

ANSWER: There is no way that I can judge how many expansion valves can be installed on the 4 x 4 Frick compressor, since the only governing factor is the running feet of coil installed in the system and how many expansion valves are required to properly refrigerate those coils.

I don't believe that you would gain anything by connecting the two coils in series on one expansion valve as a means of overcoming the trouble in this system, nor do I think that the increase of liquid line size would do any good. Evidently the liquid line is large enough at present, and the addition of any capacity in this line would not add anything to the capacity of the machine.

Apparently, your trouble is due to an unbalanced condition between the hardening room and the chill room, and may be caused by the coil in the chill room being too small for the size of the room. However, since you have not supplied me with any dimensions of these two rooms or the insulation data from which I may calculate the load, there is no way in which I can judge whether or not the coil is large enough. If the coil is too small, there is one of two remedies which may be used, the first of which is to install an additional coil so as to increase the evaporating space, and the second to increase the circulation of air over this coil, either by better baffling arrangements or by installing a fan which will force the air over the coil at a faster rate.

Apparently, the chill room receives more service than the hardening room and, for its size, probably carries the greater load. Therefore, it seems logical that the point of control should be moved from the hardening room to the chill room. I would suggest then that the thermostatic control, which you state is now installed in the hardening room, be moved to the chill room and set for the 32-degree temperature required in this room.

This arrangement will possibly cause the hardening room to be too cold, since the machine will run a greater amount of time in order to keep the chill room at the proper temperature. If this is the case, then it would be necessary to install a temperature regulating valve in the suction line of the hardening room so that when the hardening room has reached its temperature of five degrees below zero, the regulating valve will throttle the suction line, preventing the room from going to a lower temperature than that desired.

AVERAGE WATER TEMPERATURE

QUESTION 431: Can you suggest a simple formula for a problem as follows: If to a tank of water containing 2,000 gallons at a temperature of 120 degrees F., we add 500 gallons of water at 60 degrees F., what is the temperature of the combined amount of water, or 2,500 gallons?

Answer: In order to determine the eventual temperature of two quantities of water of different temperatures when they are mixed, it will be necessary to convert these

(Continued on page 40)

New and Improved Appliances

Information contained in this department is furnished by the manufacturer of the article described and is not to be construed as the opinion of the Editor.

New Ranco Control

INTRODUCED to Manufacturers and Jobbers at the January All-Industry Exhibition in Chicago; a new Ranco commercial control known as Ranco type "O" is now in production at the plant of Ranco Inc., Columbus, Ohio.

Simple in design and construction and built with remarkably few working parts. Type "O" was well received by the trade. It is available in both temperature and pressure models and offers new standards of performance and new convenience features for owners of walk-in coolers, refrigerated display cases, milk coolers, ice cream cabinets, and many other types of commercial refrigeration equipment. Underwriters' rating: one h.p. 110 or 220 volts a.c., ½ h.p. 115 or 230 volts d.c. with magnet, or ¼ h.p. 115 or 230 volts d.c. without magnet.

The Ranco type "O" is the first commercial control with all working parts made of stainless steel. The unit is a single pole snap-acting switch —small in size and big in performance.

It has a new transparent plastic insulator of high dielectric value, large silver contacts and an exclusive patented Ranco developed mechanism, setting a new standard in performance and features not available in any other control. It is featured as a two-in-one control—with constant cut-in when the control knob is mounted on the differential screw and with constant differential when the control knob is mounted on the range screw.

An interesting feature of type "O" is a lock-plate which, like the control knob, can be readily transferred from range to differential screw. This plate serves as a stop for the control knob and at the same time locks the position of the other screw to prevent its unauthorized adjustment.

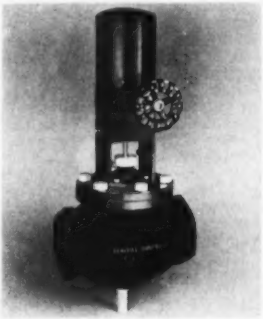
The new type "O" is very accessible. By simply removing the cover plate, all mechanism is in plain sight. The action of every working part is clearly visible. There are no blind spots anywhere in this control. You can see it work and know exactly what happens when you make changes in settings.

The Ranco type "O" features graduated visible scales with calibrations for both range and differential. The case has a transparent cover over the graduated scale so that adjustments can be made without removing the cover, eliminating entirely all guess-work.

The type "O" commercial control is another great Ranco first and one more important Ranco contribution to the refrigeration industry.

General Controls Reset Valve

TO fulfill an increasing demand for a manual reset valve which affords extremely safe and positive control of water, air, gas, steam and oil, in most all industrial applications, General Controls Co. offers its new Series MR-1-2 Valve.



The safety feature of the control should appeal to every valve user. Upon current failure, the valve closes; the valve cannot then be opened to the flow unless current is available and then only by manually resetting the valve. Furthermore, there is no possible way for anyone to open, or hold or prop the valve open without the restoration of current. This permits operators or attendants to make a thorough check of whether a safe condition exists before the valve is restored to service.

The control is operated by an external magnetic operator which is not subject to dirty, viscuous or high temperature fluids that the valve may be handling, insuring most positive control at all times.

Current consumption is extremely low, for the operator is equipped with a double re-

lease mechanism, minimizing energy requirements for valve operation. This makes it possible to operate the unit directly from a dry cell or standard pilot generator with but 5/1000 of a watt, or for 115 and 230 volt D.C. operation with but 5/10 and one watt, respectively. All A.C. model valves use an integral rectifier; energy consumption on these models is but two watts.

Series MR-1-2 Valves are available in sizes from ½-inch to 6 inches I.P.S., screwed or flanged bodies. Although unit is furnished with iron body, bronze trim, special alloy bodies with stainless or special trims are available. With the exception of semi-dust-tight or drip-proof enclosures, the valve will operate in any position. Explosion-proof construction is made in accordance with recommendations of Class I, Group D, for hazardous locations.

Detailed information of this valve may be obtained by writing the manufacturer, General Controls Co., 801 Allen Avenue, Glendale, California.

Imperial Torpedo Dehydrator

NEW "Torpedo" Dehydrators, having a streamlined, one-piece brass shell construction and described as "the most formidable weapon in the war on moisture," have been announced by The Imperial Brass Mfg. Co., 1200 W. Harrison St., Chicago. The one-piece shell, it is pointed out, reduces the number of joints, and provides greater strength and greater protection against leakage.

All Imperial "Torpedo" Dehydrators are furnished complete with flare nuts which can be used to connect the dehydrator into the line. Dehydrators are offered in six sizes, and are rated, for convenience, as to approximate compressor horsepower serviced.

In addition to the dehydrators, complete lines of Imperial "Torpedo" Filters and Accumulators have been announced for this season.

Other outstanding features of these new dehydrators are: (1) brass and bronze construction throughout; (2) brazed joints—no soft solder used; (3) easily refilled due to the fact that outlet connection and screen unscrew as a unit and there are no bolts, flanges, springs or loose screens to remove before refilling; (4) filled with silica gel.

The dehydrators have a basket type screen at the inlet end and a finger type 200 mesh brass screen, which is an integral part of the connection, at the outlet end.

Complete description and prices on the new Imperial "Torpedo" Dehydrators, Filters and Accumulators are included in a catalog page just issued by the manufacturer.

Bush Coolers

EXHIBITED by Bush Manufacturing Company was their complete line of unit coolers, designed this year to present a much more modern appearance, with rounded corners, et cetera. The newest feature introduced at this show, and creating considerable attention, was a new plastic cooler. This cooler is of the fin-coil type for market cooler work, equipped with plastic baffles to carry off the condensation and water from defrosting. These baffles are also for the purpose of directing the cold air stream, thus providing the proper air circulation within the cooler. The baffles are made of jet black Formica, a material which is not affected by moisture. It is also odorless and will not stain or spot. These newly designed units are complete with heat exchanger, which gives additional capacity to the coil.

Another re-designed product introduced at this time was an ice-making coil, using the Shucker or Quick-Release trays. Catalogs describing these products are available from the manufacturer.

New Peerless Appliances

DURING the All-Industry Exhibition held in Chicago in January, Peerless of America, Inc. exhibited a number of new products produced during the last year, together with many improved or redesigned products.

Among these were a *"One-Man Hanger"* designed for use on unit coolers. This hanger permits the hanging of unit cooler by one man, and with considerably less work than was required in former types of hangers. The hanger consists of two rails which can be fastened to the ceiling of the cooler and into which two matching rails fastened to the cooler are slid into place. The tightening of two screws, when the unit is in its place, is all that is required to finish the job.

Unit Coolers. The unit coolers, themselves, have been improved with rounded corners which greatly improve the appearance, and a new motor mounting has been employed. The new mounting permits the service man to remove the fan blade or motor of the cooler simply by the removal of four screws.

Gun Coolers. Several new models have been added to this type of cooler, and the entire line has been improved

in appearance and serviceability with a new grill and adjustable drain guard. The removal of four screws permits the fan, motor, and grill assembly to come out, thus leaving the cooler in accessible position for the installation of expansion valves, the replacement of motors, or other necessary adjustments.

New models added to the unit cooler line total five, with a range from 1800 B.t.u.'s to 20,000 B.t.u.'s.

New models added to the gun cooler line total eight, with a range from 1600 B.t.u.'s to 24,000 B.t.u.'s.

Beverage Cooler Line. Five models of a new beverage cooler unit have been added to the gun cooler line. The new line is known as the B.C. Beverage Cooler. It is intended for use in dry-cooling, bottle-coolers, and cabinets, and can be installed in the end of any type of fixture. A completely new line of dome cooler units was introduced, which is intended for mounting on the ceiling of any cooled space, and which provides a strikingly beautiful and complete installation.

Among other products exhibited for the first time were the new Peerless check valve, a new expansion valve and capacity-booster combination, a new adjustable retarder valve, and a Peerless trigger control, which is now being listed as a separate item, whereas previously it was sold only with the gun coolers.

A new heat exchanger and drier combination is being featured, and a line of small capacity-boosters is furnished in ten sizes for installations from 2000 B.t.u.'s to 20,000 B.t.u.'s.

Peerless of America, Inc. has bulletins available at the present time, describing each one of these products mentioned, and in addition, a new catalog, now coming off the press, includes all these bulletins and all specifications of products manufactured by them. Included in this catalog is a very useful universal selection chart, which provides useful tables, calculations, and so forth, required in making a choice of coils, condensing units, and other related equipment.

Tyler Beverage Cooler

ILLUSTRATED is the new Tyler "Draw Kold" Beverage Cooler recently introduced by the Tyler Fixture Corporation.

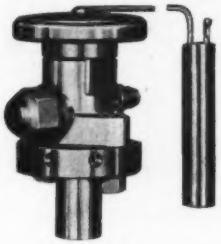
The "Draw Kold" like other Tyler fixtures is constructed of heavy gauge, rust resisting steel, electrically welded.

The following are major exclusive features of design and construction being stressed by the manufacturer.

1. Welded Steel Construction permitting 100% insulation with no wood framework to rot or warp.
2. Burn proof, stain proof Caf-O-Lite top with raised front edge which acts as a glass stop.
3. Cornelius Beer Taps—perfect control of foam and air.
4. Large heavy service doors.
5. Stainless steel drain board.
6. Coil for rapid cooling of water.
7. Designed to match and line up perfectly with the Tyler "Dry-Kold" Bottle Beverage Cooler.

Further Information and details of design and construction can be obtained on request.

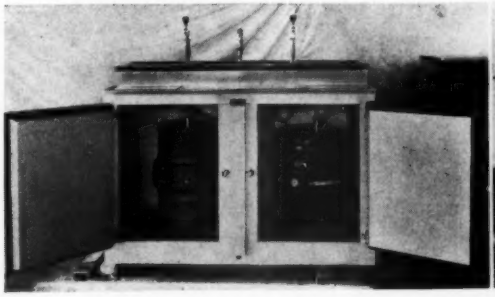
Alco Multi-Outlet Thermo Valve

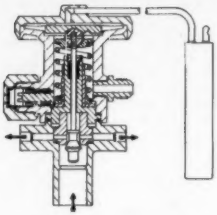


THE Alco Multi-Outlet Thermo Valve is a combined Thermo Valve and distributor which eliminates the need for a separate distributor header. It provides better distribution of refrigerant than is possible with any of the ordinary distributors or tube clusters now in use.

Distribution takes place within the valve body, *at the point of expansion*, and before separation of gas and liquid occurs. With Alco Multi-Outlet Thermo Valves, the flow of liquid refrigerant to each of the evaporator circuits is equal and direct and distribution is not affected by load changes.

The controlled distribution in the Alco Multi-Outlet





Thermo Valve eliminates distribution problems and three years of actual field experience has shown many cases of increased coil efficiencies up to 20 per cent.

Complete descriptive literature on these valves may be obtained from Alco Valve Co., 2630 Big Bend Blvd., St. Louis, Mo.

Superior Products

OUTSTANDING among the new products displayed by Superior Valve and Fittings Co., are the following:

Liquid Indicators with Swivel Flare Connectors. The conventional connections for SAE flare type liquid indicators have the SAE flare connection on both ends, the connection being made to the liquid receiver valve or dehydrator, or other part of the system, by means of two flare nuts and a piece of tubing. In this new design, one connection is provided with a swivel flare which provides direct attachment to the male flare fitting on the receiver valve, dryer, or that part of the system to which the liquid indicator normally is attached.

Liquid Indicators with Removable Sight Glass Assembly. The soldering of liquid indicators into refrigerant lines always has been a problem for the reason that the heat applied to the body of the liquid indicator for running the solder causes serious damage to the glass and gaskets. In this design, the entire top assembly may be removed as a unit, thence the refrigerant lines may be soldered into the body.

Hy-K Heat Exchanger-Accumulators. Perhaps the outstanding feature of this new product is the fact that it may be used as a straight suction-liquid line heat exchanger, or on low temperature applications as a combination heat-exchanger and accumulator.

Check Valve Especially for Hermetics. This is a small inexpensive check valve, and is generally used in the suction line of hermetically sealed refrigerating units. The purpose of the check valve is to prevent high pressure from the condensing unit from passing to the low side unit, when during operation the discharge valve, which generally serves this purpose, has failed for some reason or other. To replace the discharge valve it becomes necessary to cut the unit apart to get to the inside. The hermetic check valve, however, may be installed by merely cutting the suction line on the outside.

Alter Deodorizer

THE Harry Alter Co., Chicago, Ill., announced a new deodorizer known as "Air-Brite" and designed for use in the home, restaurant, meeting room, sick room and many other places where offensive odors may accumulate.

The best method of removing odors of smoking, cooking and other such offensive odors is by the use of an absorbing medium, such as in the Air-Brite deodorizer, which uses special activated carbon that has the amazing property of absorbing and retaining odors. Operating a good deal like a gas mask, the room air is recirculated through the deodorizer at the rate of 275 c.f.m. As the room air passes through the carbon cartridge, odors which are in the form of volatile gases are trapped, absorbed, and retained in the millions of pores of the carbon granules.

The deodorizer contains approximately two pounds of specially activated carbon in a cylindrical cartridge, having a surface of nearly one thousand square inches exposed to the contaminated air. The efficiency of this cartridge is very great, and its ability to absorb odors will last for well over a thousand hours, which is normal use for from one to two years. After the cartridge is saturated it may be discarded and a replacement refill quickly inserted in the machine. The only tool needed is an ordinary screw driver.

New and Improved Appliances

Henry Relief Valve

ONE of the new products introduced by the Henry Valve Company at the refrigeration show in Chicago this year was a snap action diaphragm relief valve. This valve incorporates for the first time a diaphragm type of construction in a refrigerant relief valve which insures instantaneous pressure relief and fast, positive reseating action. It has a very small differential between the opening and closing pressures.

This valve is ideal for protecting a system containing a substantial charge of refrigerant, because of its design features and positive performance characteristics. It may be used in relieving from either high side or low side to the atmosphere or from high side to low side of system. The valve is available for use with female pipe thread connections or it may be obtained with female solder connections.

Kerotest Packless Valves

COMBINING important and proven design factors, Kerotest Diaphragm Packless valves include important features to provide dependable and trouble-free service under all conditions.

The design of the valve includes such features as:

Accessible hex wrench hold; cap stem and handwheel may be removed as a unit; radius in forged brass cap fully supports diaphragms when stem is in full open position; metal seal of cap, diaphragms and body.

Stainless steel spring reciprocating movement of handwheel; unrestricted openings equal to inside diameter of tubing; rigidly attached with case hardened Phillips recessed screws; easy grip handwheel securely fastened to stem.

Positive metal seal when stem is in full open position; 4 metal diaphragms replaceable with valve under pressure; pressure-tested metal-to-metal backseat when stem is in full open position; replaceable flat composition seat insert; raised body seat assuring ease of operation and positive seal; heavy steel 4 hole mounting flange, cadmium-plated.

Fedders 1941 Line

FEDDERS line of lowside equipment for 1941 has been improved both from the angle of efficiency and eye appeal. In addition, some new equipment has been introduced.

The Fed-R-4 Way ceiling-type unit cooler is a new product introduced during the past year. It is designed in sizes ranging from 2,400 to 24,000 B.t.u.'s per hour. The unit is intended for mounting on the ceiling of the cooler. Warm air is taken in from the bottom and the cold air distributed from the four sides.

The Fed-R-K old is intended for standard commercial application; the Fed-R-Zero, which is equipped with hot gas defrosting connections, is for use in low temperature work; the Fed-Air-Kool is for comfort cooling. All of these cooler units are finished in attractive colors, pleasing in appearance.

The Fed-R-Indirect is a panel-type unit cooler, equipped with the new Directoflow baffles. It is intended for reach-in refrigerators and other such applications.

The Fed-R-Ice-cube-maker is a newly-designed unit, made in a variety of capacities. Engineered with flat tubes, which permit greater contact surface, and tubes above and below the trays, they are both compact and fast in freezing.

Last, but by no means least, in new products is the Model 410 Thermostatic Expansion Valve. Built along the field-tested lines of the Model 33 valve, the new model includes such features as moisture-proof construction, compact arrangement, Duro life bellows and high-vapor-charge power element.

Headlight for Servicemen

ANNOUNCED by Justrite Manufacturing Co., 2061 North Southport Ave., Chicago, is a new Electric Headlight for use by Service Engineers.

This new light is the No. 119 Featherweight Headlight. It consists of a three-ounce headpiece which carries the bulb and a highly polished reflector. It straps to the head by means of an elastic headband. A wire from this headpiece connects to the battery case which holds four regular flashlight cells.

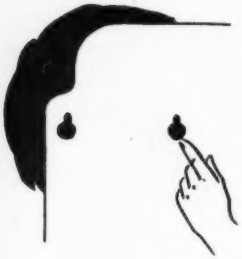
The light is designed to throw a wide beam of light and will cover an area about three feet in diameter at a short distance. The light can be focused.

The No. 119 Electric Headlight is ideal for servicemen because it leaves both hands free for the job. It also permits putting a light directly on the work and guiding it simply by turning the head.

Continued on Page 38

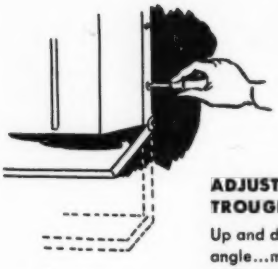
HOW FED·R·LUXE UNIT

to save TIME *for Refrige*



EASY TO INSTALL

"Easy as hanging a picture", . . . keyhole type mounting holes provided for quick, easy installation . . . you don't even have to take cover off!



ADJUSTABLE DRAIN TROUGH

Up and down and at any angle...makes Unit Cooler fit regardless of shelf spacing...directs air-flow at any desired angle.

BRACKETS PROVIDED FOR CEILING INSTALLATION

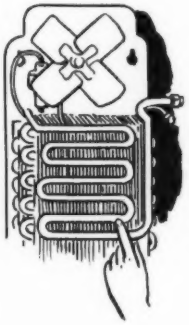
Strong, rigid channel hangers are accessible at both ends of cabinet.

ACCESSIBLE CONNECTIONS

Brought out at the side where you can get at them without being a contortionist. Standard S.A.E. fittings that fit!

REMOVABLE GRILLE

Makes it easy to oil motor or adjust thermostatic expansion valve. Another way that Fedders has built unit coolers to please service engineers. Saves hours...saves money.



HEAT EXCHANGER

Built-in heat exchanger with efficient design for heavy duty loads.

MANU

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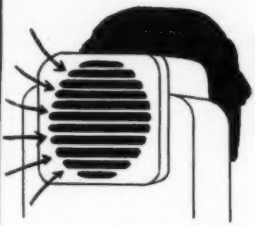
101 MODELS TO FIT EVERY INSTA

UNIT COOLERS ARE BUILT

frigeration Engineers

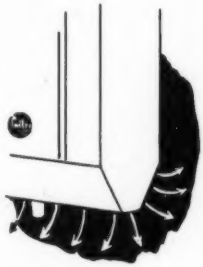


101 MODELS

High efficiency, ALL-COPPER cooling element, correct fan speed, 101 models provide the correct and most economical size for every installation where space and buyers' budgets are limited.

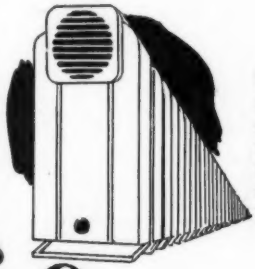
CHINA WHITE

Sanitary and easy to clean as a china bowl. Chrome and scarlet trim . . . blends in with case design.



STREAMLINED CABINETS

The best looking Unit Coolers on the market... add sales appeal to display cases and the foods they protect!



INDIRECT AIRFLOW

Provides gently diffused distribution of refrigeration. Assures ideal conditions of humidity throughout show case.

fedders

MANUFACTURING CO., INC.

General Offices

BUFFALO, NEW YORK

YOU WILL ENJOY DOING BUSINESS WITH YOUR FEDDERS WHOLESALER. HE CARRIES A STOCK OF FEDDERS PRODUCTS AND WILL GIVE YOU WHAT YOU WANT WHEN YOU WANT IT.

INSTALLATION!

New and Improved Appliances

(Continued from page 35)

Temprite Suction-Pressure Valve

IF you have a baffling temperature-control problem, try Temprite Model 900 or 975, suction - pressure - control valve, manufactured by Temprite Products Corporation, Detroit, Michigan.

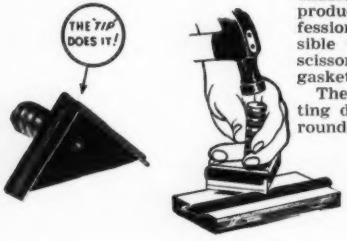
The usual application for this valve is on multiple systems, but its control is so sensitive that it is frequently used on single installations where closer and more constant refrigeration is required than can be supplied by condensing unit control switches. The valve may be used with either flooded or thermostatic expansion valve systems, or a combination of the two. It is equipped with springs which permit adjustment in the field between the pressure limits of the valve.

It is provided with a boss, tapped for quarter-inch pipe thread, in which may be inserted a service gauge while making pressure adjustments. The inlet and outlet of the Model 900 control is tapped for half-inch pipe thread. The Model 975 is tapped for ⅝-inch pipe thread. Complete information on this valve may be found in Temprite's catalog on Coolers and Accessories, available upon request.

Included in the new Temprite Cooler Catalog is illustrated and described a number of instantaneous water cooler models for various applications.

Gasket Corner Notcher

THE Jarrow Door Seal Corner Notcher, introduced by the Jarrow Products, Chicago, solves the problem of replacing refrigerator door gaskets for the service man. It can be used on any size and type of door gasket, and enables the service man to produce a smooth fitting professional job, not always possible where a jack-knife or scissor is used to cut the gasket.



The tool is a 90-degree cutting die, having a protruded rounded tip, which takes out the precise amount of rubber, permitting a close fitting, non-leaking gasket corner. The tool will retail for $4.98.

PERSONALS

Robert Frederick McKesson

MR. AND MRS. L. C. McKESSON of Menominee, Michigan, turned totalitarian recently and announced the future dictator of their home in the person of Robert Frederick McKesson, weight seven pounds, newly arrived.

Mrs. McKesson held the spotlight in the presentation and is reported doing well. L. C., however, seems to be suffering with a severe case of over-expanded chest. "Pop" McKesson is Assistant Sales Manager of Ansul Chemical Co. His many friends in the industry join his associates and personal friends in congratulations and best wishes.

Service Engineer Returns to Service

ARCHIE L. FAIT, formerly with R. E. Thompson, refrigeration jobber of St. Louis, is now engaged in general refrigeration service work. In making the announcement, Mr. Fait said, "Having spent twelve years in the refrigeration field, most of which has been in service, I have wanted to get back into a pair of overalls for some time. Therefore, on the first of February I purchased the service department of Myrick's Sales of Lincoln, Ill."

The name of the new company organized by Mr. Fait is Refrigeration Stoker Service and Parts, located at 809 North Kankakee Street, Lincoln.

E. R. Ferguson with Republic

THE Republic Electric Company, Davenport, Iowa, wholesale refrigeration and supply jobbers in western Illinois and eastern Iowa, have appointed E. R. (Deke) Ferguson as their sales representative, who will handle their western Illinois territory.

Mr. Ferguson was formerly with the General Electric and Kelvinator dealers, as a salesman and serviceman at Elkhorn, Wisconsin.

TEMPRITE

"Two-Temp" will handle Your Toughest Jobs

OUTSTANDING FEATURES

	MODELS	
	"900"	"975"
Adjustable Range—Lbs. Capacity BTU's per hr.	0-35 5300-21000	5-40 2000-11200

- Close Temperature Control
- Wide Range of Adjustment
- Rugged and Dependable
- Extreme Sensitivity
- Large Gas Capacity
- Shuts Off Tightly
- Easy to Install
- Easy to Adjust
- Convenient Service Gauge Connection

IF you have a temperature control problem which has so far baffled you, try the Temprite Model "900" or "975" Two-Temperature Suction Pressure Control Valve. You will find it to be the answer.

When a "900" or "975" Two-Temp Valve controls the refrigeration equipment, you can forget about it; that's how good it is and that's why more and more service men call for a "900" or "975" when other two-temps fall down on the job.

Of the throttling type, these valves control by regulation rather than by sudden opening and closing, they close tight at the cut-out point and stay closed so long as pressure is below cut-out.

NOTE: "900" and "975" differ only in size and capacity.
May be used on Sulphur Dioxide, Methyl Chloride or Freon-12.

Ask your jobber or write us for copy of descriptive form J-12 and J-22.

TEMPRITE PRODUCTS CORPORATION
49 Piquette Avenue — Detroit, Michigan, U. S. A.

QUESTION BOX

(Continued from page 30)

quantities to the total B.t.u. contained in the mixture. The reason for this is that temperature describes to us nothing more than the pressure level of the heat and provides us with only a single dimensional figure.

In order to strike an average of this kind, it is necessary to deal with volume, or three dimensional figures. From our definition of a B.t.u., we find that there is one B.t.u. required to raise one pound of water one degree Fahrenheit, and since there are 8.34 pounds per gallon of water, we find that 2,000 gallons would contain 2000 × 8.34 × 120 degrees, or 16,688 pounds × 120 degrees, which equals 2,001,600 B.t.u. The 500 gallons of water will contain 500 × 8.34 × 60, or 4,170 pounds × 60 degrees, which equals 250,200 B.t.u. Our total B.t.u. contained in the two quantities of water equals 2,251,800, and the total number of pounds of water is 20,850. Dividing our total B.t.u. by the total number of pounds of water, we find that the temperature of the mixture will be 106 degrees.

CHANGING MILLS FREEZER TO REMOTE INSTALLATION

QUESTION 432: I have a Mills ice cream freezer, Model 42, which has to be taken out of the cabinet and installed in the store cellar. This is a combination outfit freezer and six-can cabinet, and it is a one-h.p. water-cooled unit. What precautions must I take in regard to check valves and thermostatic expansion valves? These valves are to be left at their present locations, I figure. Does any extra oil and gas have to be added? The unit will be put right beneath its present location about six feet down.

There is a ¼-inch line running from the hardener or freezer thermostatic expansion valve to the head of the compressor. What is the function of this line, which is also connected, I believe, to the liquid line of the same thermostatic expansion valve? What do I do with this line? Extend it downstairs to the unit? (Compressor head connection.) Please give me a general explanation of the cycle of operation of this job so I'll know what I'm doing when I change it over.

I have a domestic Copeland with an odorous alcohol evaporator. I can't find any leaks, and still it smells of denatured alcohol. Could I put a brine solution in the unit without injurious effect to the tank? Is it safe to resolder all seams on the tank without having the alcohol ignite or burst the outfit? If brine is suitable, what do I use in the formula? Ordinary table salt?

ANSWER: There should be no difficulty in moving the unit to the basement from the Mills Ice Cream Freezer. It is merely a matter of extending the liquid and suction lines to the compressor, from its present location to its new one.

I would suggest that all the controls, including the check valve, thermostatic expansion valves, or any other suction line controls, be left in the cabinet in their present location, and because of the short distance that the lines are going to be extended, there should be no necessity for adding any additional refrigerant or oil.

With regard to the quarter-inch line which you state runs from the hardener or freezer thermostatic expansion valve to the head of the compressor, as far as I can determine this must be the pressure relief line which returns high pressure gas from the freezer through a pressure-relief valve back to the highside of the system. I would suggest that instead of extending this line down to the compressor in its new location, you tee it into the liquid line after it enters the cabinet.

With regard to the Copeland unit, it is possible to remove the alcohol and fill this brine tank with a calcium chloride brine. However, you may run into difficulty a year from now, due to the brine's eating through some part of the tank. Calcium Chloride brine will set up an electrolytic action between dissimilar metals, and unless we can be sure that there is not more than one metal in the construction of this tank, there is the possibility of the brine's eating through one of them.

The tank can be easily repaired providing you take the precaution of removing the alcohol brine and flushing the tank with water before a flame is applied to it. Denatured alcohol is explosive when its fumes are confined to a space of this kind, and unless the tank is thoroughly flushed there may be an explosion occur while you are working on it.

S S S

Orval H. Smith
W. Virginia.

I find this publication a valuable asset and worth much more than the price.

Carlsbad Caverns Installation Wins Imperial "Triple-Seal" Contest

AN unusual installation at the Carlsbad Caverns in New Mexico won the first prize of $100.00 offered by the Imperial Brass Manufacturing Company of Chicago for the best description and statement about the use of Imperial Triple-Seal Flare Fittings. The first prize went to Nick C. Meyer, Installation Supervisor of the Grauman Company of Denver, Colorado, builders of fountain and lunchroom equipment. The Imperial Triple Seal Fittings, manifolds, valves and other items used on the job were sold by the McComb Refrigeration Supply Co., the Imperial Jobber at Denver. The accompanying illustration shows the prize being awarded to Mr. Meyer.

The specific installation covered by Mr. Meyer in his description was for the soda fountain and luncheonette shown in Fig. 4. The installation was made with the Imperial copper tube manifold system. Fig. 2 is a close-up view of the two compressor units.

In the statement that won the first prize in the national contest Mr. Meyer stated: "The Triple Seal Fitting makes it possible to get a good tight joint without the necessity of pulling up the flare nuts to an extent where the tubing might become twisted or the possibility of shearing off the flare. It is possible to put in a neater job in less time than with ordinary flare fittings.

The Carlsbad Caverns, where the installation is located, are recognized as the most spectacular of the natural underground wonders. In size, coloring, variety, and perfection of formation, these caverns, according to geologists, are without equal among all the famous caves of the world. One of the rooms or caverns, known as "The Big Room," is three-quarters of a mile long, 625 feet wide, and in some places 300 feet high. A trip through the Caverns, which has been set aside as a National Park by the Government, requires a hike of seven miles. Trips usually start in mid-morning and require five hours.

Fig. 1—The winner, Nick C. Meyer, Installation Supervisor, The Grauman Company, Denver, Colo., receives award from Imperial representative, Paul C. Hathaway, while Harold McCombs, of McCombs Refrigeration Supply Co., local Imperial jobber looks on.

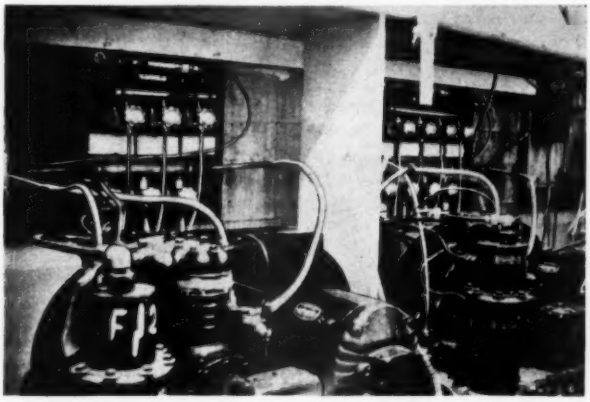


Fig. 2—A view of the two compressors installed to handle the job, showing 14 Imperial shut-off valves, manifolds, dehydrators and arrangement of units.

Fig. 3—An interesting view of what is considered "The Most Unusual Installation in the World." Cafeteria equipment in the Carlsbad Caverns is located 700 feet underground where as many as 3700 people have been served in three hours.

One of the problems at the Caverns has been to provide adequate eating accommodations for the large parties that go through the Caverns. To handle large groups quickly the Grauman Company installed a complete cafeteria located 700 ft. underground in a huge chamber 820 ft. by 100 ft. A view of this cafeteria is shown in Fig. 3 with a crowd of tourists lined up at the steam tables with their trays, ready to be checked out to the tables. This cafeteria has handled a peak load of 3,700 people in three hours.

Various Imperial items are also used in this installation although it was in operation before "Triple-Seal" Fittings were developed.

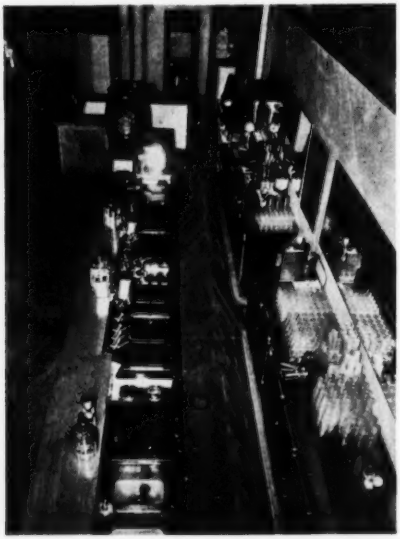


Fig. 4—Soda fountain and luncheonette, in the Administration Building at Carlsbad Caverns, installed by Nick Meyer of the Grauman Company of Denver.

Second prize in this nation-wide contest was awarded to Myer S. Axelrod, of the Continental Refrigeration Service Company, 5814 West Chicago Ave., Chicago, Ill. The installation which won him second prize of $50.00 was an 8 x 10 walk-in refrigerator used for storing and curing sausages and ingredients.

S S S

2nd Convention Sponsored by Ontario Maple Leaf Chapter "Ready to Go" March 17-18

AFTER months of careful planning and hard work, word has come from the Ontario Maple Leaf Chapter, "We are ready —ready with a larger, better exhibit, a better educational program, ready to receive and welcome a larger delegation from chapters in the United States and Canada, ready to accommodate and entertain them with improved facilities and a better banquet, floor show, and dance."

According to the information received, it is expected that the number of exhibitors will be increased by more than fifty per cent this year over last. Additional space in the King Edward Hotel, Toronto, has been reserved to accommodate this increase.

A special invitation is extended by the Convention Committee to members of the industry in the States to attend the show. It

The Original
VELVET ACTION VALVES

NEW!
MODEL X CAPACITY BOOSTER

An ingenious new unit which combines a Thermek surface Heat Exchanger with a Silica-Gel Dryer Cartridge. Assures a dry suction line by super-heating suction vapor—engineered to suit all small and medium installations.

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Peerless Valves definitely improve the operation of any refrigerating system by their smooth, velvety control of refrigerant. Continuous, trouble-free performance is assured by sound basic design, backed by carefully chosen materials and painstaking workmanship. Peerless valve movements are always smoother, easier—no jerking or jumping.

Peerless alone offers the *Interchangeable Orifice Cartridge,* a device which accurately meters the flow of refrigerant in the correct quantity for any application. Alternate over-feeding and under-feeding is completely eliminated. Precision-made, attractively finished and rigidly inspected, Peerless Valves are delivered to you in tamper-proof metal containers.

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Long Island City	Los Angeles, Calif.	Dallas, Texas	Detroit, Mich.

ADVERTISING PAGES REMOVED

is expected that large delegations from Detroit, Mich., Buffalo, and Rochester, N. Y., will be present, and it is hoped other cities of the East and Middle West will be well represented. It is pointed out by the committee that due to the favorable exchange rate on American money in Canada, the total expense involved will be greatly reduced.

Registration fees, which include tickets to the banquet and dance, are $3 for men and $2 for ladies. Dance tickets only are $3 per couple.

A two-day educational program has been arranged, with a host of interesting subjects. In addition, there will be a soldering contest conducted by Mueller Brass Co. during the evening of March 17. The complete two-day program, as of date, follows:

Monday, March 17

Registrations
Introductory Remarks & Nominating Committee
Properties and Characteristics of Refrigerants
R. J. Thompson, Kinetic Chemicals
Beverage & Water Cooling
Temprite Products Corp., Detroit, Mich.
Controls & Water Valves
P. Penn, Penn Switch Co., Goshen, Ind.
Drier & Drier, Agents
P. Domke, Mueller Brass Co., Port Huron
"Information Please"?
H. Parish, Kelvinator of Canada Ltd., London, Ont.

Monday Evening

Soldering Contest
Mueller Brass Co., Port Huron, Mich.

Tuesday, March 18

Election of Interprovincial Officers
Dole Plates & Applications
A. F. Sawyer, Dole Refrigerating Co., Chicago, Ill.
Summary of the Historical Background of Mechanical Refrigeration
R. E. Townsend, Detroit Lubricator Co., New York, N. Y.
Heat Interchangers & Applications
K. M. Newcum, Superior Valve & Fitting Co., Pittsburgh, Pa.
Service Salesmanship
E. Graff, Ranco Incorp., Columbus, Ohio
"Information Please"?
H. Parish, Kelvinator of Canada Ltd., London, Ont.

Tuesday Evening

Banquet and Dance

R. S. E. S. Chapter Notes

CENTRAL INDIANA CHAPTER

February 18—The meeting was called to order by President William Sevy. The secretary was instructed to make arrangements for another get-together party, to be held April 30 at the Indiana General Service Club Rooms, Marion, Indiana.

Several new members were present at this meeting, as well as a good turnout of the older members. After the business was transacted, Vern Nold made a drawing on the blackboard of the right and wrong way to install commercial systems. This brought forth a host of questions regarding refrigerating problems connected with the installation of new equipment.

SAN DIEGO CHAPTER

February 20—The meeting was very well attended with all but two members present. There were also quite a large number of guests from local service firms who helped to swell the total attendance.

On the educational program for the meeting, Mr. Askew, of Los Angeles, gave an interesting talk on the refrigeration service business from the accountant's viewpoint.

Following Mr. Askew on the program, Frank Gillett gave a complete report on the activities at the National Convention.

Officers recently elected to serve during 1941 are: *President,* H. E. Friedrichs; *Vice-President,* T. R. Connors; *Secretary,* M. R. Hanks; *Treasurer,* M. J. Pitts; *Sergeant-at-Arms,* C. P. Chapman.

SCRANTON CHAPTER

February 18—This meeting was devoted primarily to the nomination and election of officers, and in the business meeting that preceded the election, it was decided that at the March 4 meeting refreshments would be served and that the installation of officers would take place at that time. It was also decided that the fiscal year of the Chapter would end with the third Tuesday of February of each year. The officers elected were as follows: *President,* Karl Muller; *Vice-President,* Henry Hydorn; *Secretary,* Chris G. Hess; *Treasurer,* Lou Levy; *Educational Chairman,* R. B. Smith; *Sergeant-at-Arms,* Dick Morris; *Directors,* Fred Gethman and William Franklin.

PITTSBURGH CHAPTER

January 10—The meeting was held in the Fort Pitt Hotel with S. C. Perry presiding. After the usual business, Mr. Perry turned the meeting over to A. H. Ross, the newly elected president. Several matters were discussed for presentation at the National Convention, and it was decided, after some discussion, to have a warrant book for all bills and expenditures, as well as a $10 petty cash account for the secretary. Reports of all the expenditures are to be given to the treasurer.

February 14—A. H. Ross presided and the educational feature was a talk by A. G. Viola, of the Wagner Electric Company. Mr. Viola talked on motors and controls, answering many questions following the completion of his talk.

John Kirch also gave an interesting talk on planning future national conventions. A general discussion on to the topic followed.

Next on the business program was the election of an educational chairman, L. H. Blose winning the election. Mr. Ross then appointed other committees, the first of which was for entertainment, con-

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55 E. Washington St., *Hagerstown, Md.*
3104 Main St., *Houston, Texas*
927-31 N. Meridian St., *Indianapolis, Ind.*
212 Michigan Ave. West, *Jackson, Mich.*
2619 McGee Trafficway, *Kansas City, Mo.*
1057 North LaBrea Ave., *Los Angeles, Calif.*
831 E. Broadway, *Louisville, Ky.*
1071 Union Ave., *Memphis, Tenn.*
134 N. W. Third Ave., *Miami, Fla.*
647 West Virginia St., *Milwaukee, Wisc.*
4 Cummins Station, *Nashville, Tenn.*
19 E. Washington St., *New Castle, Pa.*
4436 Toulouse St., *New Orleans, La.*
P. O. Box 300, *Norfolk, Va.*
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2558 Farnam St., *Omaha, Nebr.*
316 S. Jefferson Ave., *Peoria, Ill.*
1920-22 Chestnut St., *Philadelphia, Pa.*
404 Craig St., *Pittsburgh, Pa.*
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29 Franklin Road, *Roanoke, Va.*
205 St. Paul St., *Rochester, N. Y.*
3414-28 Lindell Blvd., *St. Louis, Mo.*
2446 University Ave., *St. Paul, Minn.*
579 W. 2nd South St., *Salt Lake City, Utah*
301 S. Flores St., *San Antonio, Texas*
300 West Lake North, *Seattle, Wash.*
806 Pierce St., *Sioux City, Iowa*
320 Riverside St., *Spokane, Wash.*
351-57 E. Onondaga St., *Syracuse, N. Y.*
102 E. Lafayette St., *Tampa, Fla.*
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sisting of W. H. Barns, C. Terrill, and S. P. Riddle; Investigation Committee, including W. E. Zimmerman, J. C. Hipps, and J. E. Scrabak.

CLEVELAND CHAPTER

January 9—The meeting was called to order by President Fenwick, and after the business of the evening had been transacted, Mr. Smith of Wagner Electric Company gave a talk on servicing electric motors in the field. He was kept busy for a considerable length of time after the completion of his talk answering questions of the group present. It was felt that his talk and discussion was one of the most interesting the Chapter had enjoyed in a long time and that much had been learned from it.

Four new members, H. P. Bernow, Ludwig Wagner, Salavatore Alesandro, and Thomas Madal were introduced to the Chapter.

January 23—After the minutes of the previous meeting had been read and approved, the nominating committee presented its report.

Warren Farr, who acted as the Chapter's representative at the Secretaries' Luncheon at the Annual Convention, gave a very concise report of activities that took place and suggestions that were made.

On the educational program, a quiz contest took place with every one taking an active interest. Thanks were extended to Mr. Weidwold for his help in making this contest possible.

COLONELS CHAPTER

February 6—A discussion concerning the selection of an educational committee for the Chapter took up considerable time at the beginning of the meeting. It was recommended that a man be selected from the membership to act as educational chairman with the privilege of choosing his own committee. His principal duties would be somewhat different from the usual duties of the educational chairman in that he would act as a consulting engineer on out-of-the-ordinary types of work, or on jobs where much difficulty was being experienced. He would also give advice on how to lay out new installations. Charges for this service would be a minimum of $3 for one machine and one fixture, with $1 more for each additional fixture, but not less than $1 per h.p. A motion embodying this entire idea was made eventually and duly passed. H. C. Moore was elected to serve in the capacity of consulting engineer. His services will be available to the members of the Chapter only, and fees are to be guaranteed by the member requesting the service.

February 20—The educational program for the evening took the form of a quiz, using the questions and answers in back issues of THE REFRIGERATION SERVICE ENGINEER as the basis of discussion.

TWIN CITY CHAPTER

January 28—The meeting was turned over to Mr. Leuthner and Mr. Brady of Nash-Kelvinator Sales Corporation. Mr. Brady proceeded with a lecture on his picture-taking experiences. He also showed an uncensored war film. Eighty-seven men were present at this meeting and 7 door prizes were given.

February 11—Approximately ten new members were introduced to the Chapter during the first part of this meeting, and each was given a hearty welcome to the Chapter and its future meetings.

Mr. Randall presented his report on the activities of the National Convention at Chicago, and Mr. Schaeffer reported for the Code Committee. A great deal of discussion then arose regarding telephone advertising, the final result of which was that a committee was appointed by President Palen, consisting of Mr. Schaeffer, Chairman, Mr. Lewis, Mr. Stewart, and Mr. Berheim, to look into the matter and report at the next meeting.

February 18—The business for the evening was dispensed with so that as much time as possible could be given to the discussion of telephone advertising. A plan was finally arranged as follows: That the Chapter enter into a cooperative telephone directory advertising plan; that the R.S.E.S. emblem be placed under the "Refrigeration Service Electric" heading, and individual or firm names and telephone numbers be listed under the emblem. The privilege of listing under this classification would be limited to three classes of individuals and firms: First, individuals who hold active membership in the Chapter and who operate their own refrigeration businesses; Second, firms whose proprietor or service manager holds active membership in the Chapter, and whose firm operates a refrigeration business; Third, firms that operate a refrigeration business and employ refrigeration service men, the majority of whom hold active membership in the Chapter. Under any of the classifications mentioned, individuals or firms must be of good reputation, properly skilled in the servicing of refrigeration equipment, to qualify for the listing. They must adhere to ethical business practice, and their inclusion in the listing must be approved by the telephone directory advertising committee of the Chapter. Payment for the advertising space must be borne entirely by those whose names appear in the ad, and payment must be made direct to the telephone company. Payment for the space occupied by the emblem of the Chapter will be prorated and apportioned equally among those listed under it.

On the educational program for the evening, Mr. Barber of Virginia Smelting Company presented a picture of the manufacture of sulphur dioxide and methyl chloride.

Next on the educational program, Mr. Dalavon of Henry Valve Company discussed valves and Henry products.

Then Phil Brain showed the 1940 football pictures of the University of Minnesota. He also showed a colored picture of the winter sports carnival held in St. Paul. The prize picture of this group was a diving exhibition given by a 17-year-old girl.

CENTRAL NEW YORK CHAPTER

January 22—The meeting was called to order by President F. Harder, and because of the fact that this was designated as an open meeting, all business and the minutes of the previous meeting were dispensed with.

A spaghetti supper was thoroughly enjoyed by all and a rising vote of thanks was given to Mr. and Mrs. Nick Andrella for the work they had done in providing the meal.

After the meal was served, a regular bull session followed, and all in attendance thoroughly enjoyed themselves for the balance of the evening.

February 12—The educational committee reported that Herman Goldberg's convention film was now available to the Chapter.

It was announced by the sick committee that Mr. William Menzies, a Charter Member, had died very suddenly on February 6, and that a floral wreath had been sent by Chapter members as an expression of their condolence to the family.

AKRON CHAPTER

January 6—After the preliminaries of the meeting were completed, President Moyer appointed the following committees: *Membership*, John Moore and Jack Englert; *Educational*, Claude Wall and Cervera App; *Entertainment*, William Moyer and Robert Fox.

Plans were discussed and formulated for the formation of a bowling team.

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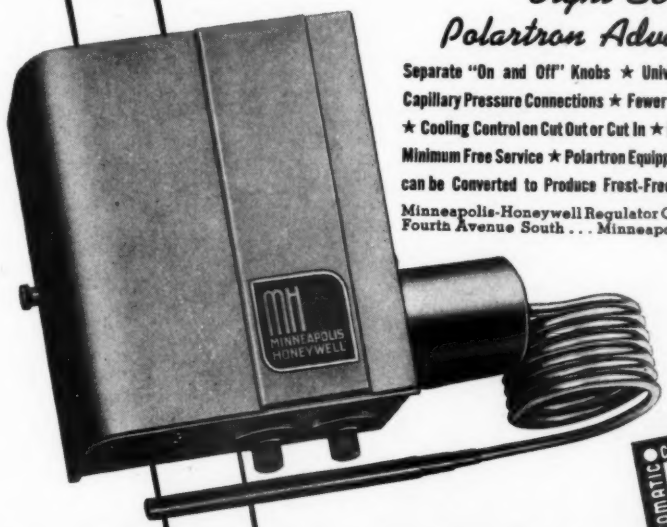


AUTOMATIC CONTROLS MH

MINNEAPOLIS HONEYWELL
REFRIGERATION *Control*

Continuing the same program that was started in the previous meeting, a True and False Quiz contest entertained the members until time for adjournment.

February 3—The treasurer's report for 1940 was presented by Treasurer Claude Wall and unanimously accepted.

On the educational program, a True and False Quiz led to a discussion of the various types and makes of expansion valves and their service problems. Refreshments were served by Mrs. Barnaby to the members and their ladies who were present.

DAYTON CHAPTER

February ..—The meeting was called to order by the newly elected president, G. G. Orsborn, and after the usual routine of business had been completed, Delbert Goll delivered his report on the National Convention in Chicago. The meeting was then turned over to Harold Shouppe, who conducted the educational program for the evening.

ROCKFORD CHAPTER

February 17—The attendance prize was won by Roy Shipman. Much of the evening was spent in suggestions from the members, the first of which was for reorganization of the past practice in drawing attendance prizes. It was suggested that each member's name be placed in a capsule, and that if the man whose name was drawn was not present, the money would be held over and added to the next drawing. If the prize should not be drawn by a member present for four meetings, then a useful tool should be purchased. If the first name drawn was not present, then three more names should be drawn, and if none of the three were present, then this prize should be held over for the next drawing. When the attendance money has accumulated to the amount of $5.50, and when it has been won by someone present, he will be issued a receipt for his year's dues in lieu of the money.

CENTRAL ARIZONA CHAPTER

January 31—Mr. Peel described in detail the activities of the convention. William Voigts, a teacher at the Vocational School, explained to the group that facilities could be provided for any trade groups to meet in the school and to show moving pictures. The school has a movie projector, which may be used by the group, and there is ample room for all meeting activities.

The rest of the evening was spent in general discussion concerning the business end of the refrigeration industry and ways and means of increasing the earning power of service engineers. It was suggested that the secretary write to the Cleveland Chapter in an effort to secure one of the price books published by that Chapter.

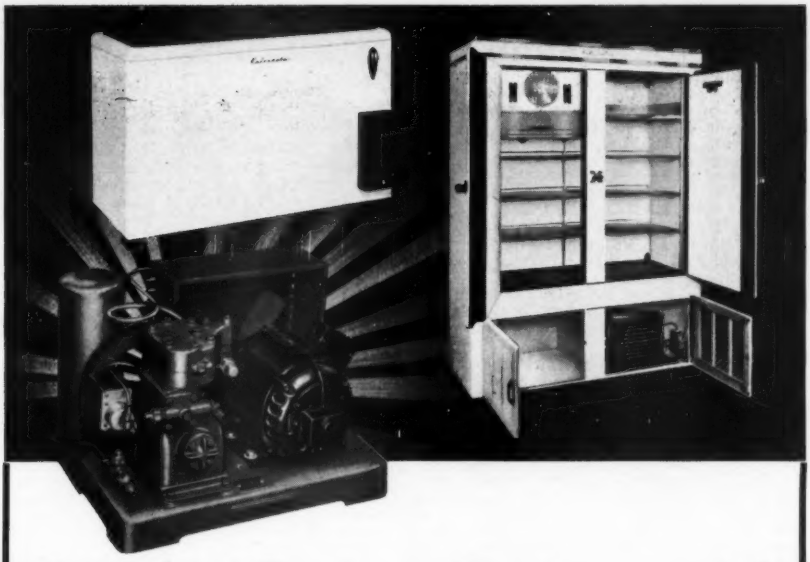
NIAGARA FRONTIER CHAPTER

February 19—This was an open meeting, held in the Como Restaurant, which featured a lengthy discussion on labor status of the refrigeration service engineer. It was one of the best-attended meetings staged by the Chapter in more than a year, and while no definite decision was reached on the labor matter, the discussion produced some interesting slants on the labor problem.

The consensus seemed to be that before the Chapter could take any action on the matter, it would have to increase its membership and prestige, and all those present agreed to cooperate in such an effort.

John K. Bush, President of the Chapter, presided. He announced that the next meeting would be held in the Como Restaurant on March 5, when an engineer from the Detroit Lubricator Company would discuss expansion valves.

A GROUP OF THOSE ATTENDING THE DES MOINES CHAPTER BANQUET HELD JANUARY 23, 1941.



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ST. LOUIS CHAPTER

January 23—The meeting was called to order by President O. E. Petri. E. A. Plesskott, National President, gave an interesting talk on the convention activities, ably assisted by Messrs. E. C. Fix, J. O. Spitznagel, and O. G. Tinkey.

On the educational program, E. J. Gygax, Chairman, introduced E. S. Lape, Curtis Sales Engineer of the New York Division, who gave an interesting talk on the phases of the refrigeration industry in his section of the country.

SPRINGFIELD CHAPTER

January 24—The annual election of officers of the Springfield Chapter resulted in the following officers: *President*, R. M. Potter; *1st Vice-President*, Robert Sassenberg; *2nd Vice-President*, J. K. Farrelly; *Secretary*, Edward P. Greig; *Treasurer*, John Stoppelwerth; *Board of Directors*, F. W. Nichols, D. E. Greig, J. W. Barnes, and J. J. Kline.

CANADIAN CAPITAL CHAPTER

February 3—After some discussion on the matter of dates and arrangements for future meetings, it was decided that the next regular meeting night would be dispensed with, and that a banquet would be held on March 10 in conjunction with the Imperial Brass Tube Bending Contest, arrangements for which had been completed. A tube bending contest for the junior members of the Chapter was held at this time, with the following entrants winning the prizes: First prize, F. Turner; Second prize, A. Spearman; Third, E. Harrington; Fourth, K. Robinson. The first prize for the contest was a tube cutter, donated by Mr. Brown of Arco Refrigeration Parts Ltd. The door prize, donated by the Producer's Dairy, was won by J. Bellamy.

February 17—A letter received from T. Savill, secretary of the Ontario Maple Leaf Chapter, in regard to the convention to be held in Toronto, was read and discussed. Several members expressed their desire to attend the convention.

Mr. Parsons, the local distributor of Electrolux Refrigeration, gave an interesting talk on his product, illustrated by charts.

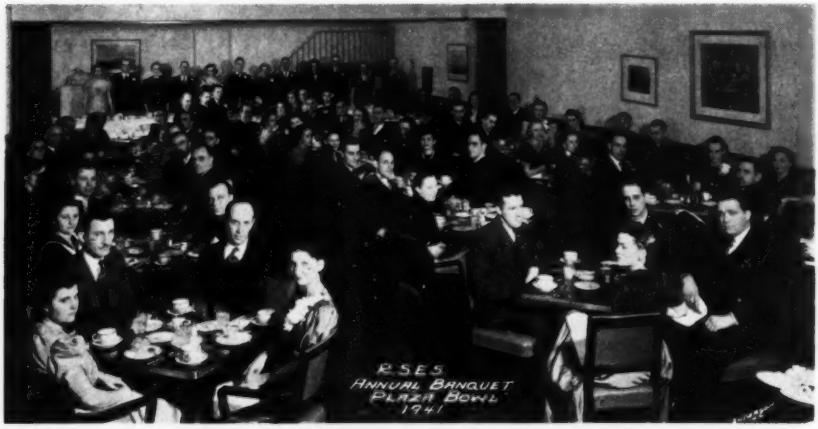
KANSAS CITY CHAPTER

January 28—After the minutes of the previous meeting had been read, the annual election of officers was held, the results of which follow: *President*, Elmer Bloesser; *1st Vice-President*, A. M. Hoover; *2nd Vice-President*, F. A. Thompson; *Secretary*, R. E. Meeker; *Treasurer*, F. C. Smith; *Sergeant-at-Arms*, Roy F. Cox; *Board of Directors*, B. E. Allen, Jules P. DeWilde, T. L. Anderson.

On the educational program for the evening, a motion picture, produced by Sheffield Steel Corporation, entitled, "More Precious Than Gold", was shown by F. C. Smith, who also furnished the projector. Arrangements for this showing were made by Allen Brown, and the members of the ladies Auxiliary were guests during the showing.

February 11—A copy of the local R.S.E.S. News was presented at the meeting for the enjoyment of the members. Berry Allen was congratulated on the fine job of editing he had done, and a motion was made and carried to adopt the paper as a monthly feature of the Chapter. Arrangements were made for copies to be mailed to all members. Berry Allen was appointed Editor-in-Chief, with Allen Brown assisting.

On the educational program, Mr. Updegraph gave an excellent talk on the properties of air. His talk was followed by a talk by Mr. Carmody, of Spoehrer-Lange Company, on the new replacement



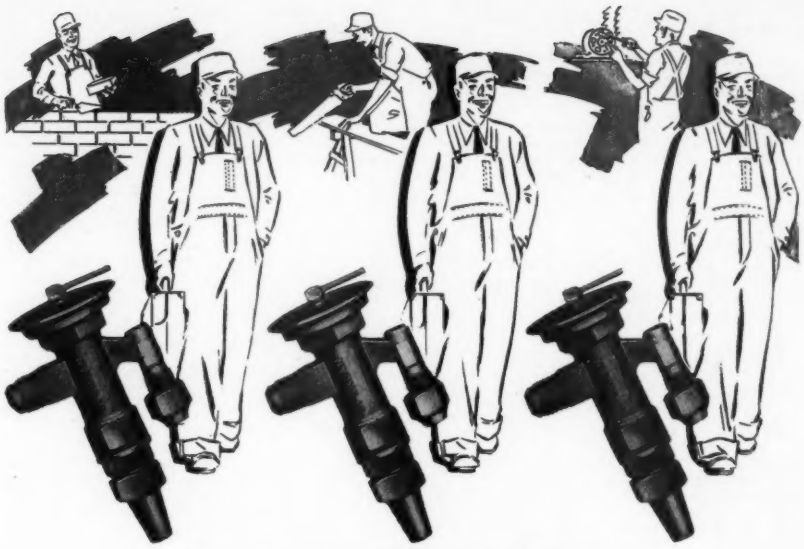
KANSAS CITY CHAPTER ANNUAL DINNER DANCE

The Kansas City Chapter held its dinner dance in the Plaza Bowl Club Lounge on February 20 with approximately 75 members and friends in attendance. E. L. Tramposh, acting as master of ceremonies, introduced the new officers for the year, both for the Chapter and for the Ladies Auxiliary.

As a means of getting everyone properly acquainted, the men were asked to circle the room and each gentleman, in turn, was asked to introduce himself and his guest, giving his connection with the refrigeration business.

Many door prizes were provided, three of which were available to paid-up members only. Winners of these were Charles Wells, A. M. Hoover, and Carl Geist.

An educational playlet of a housewife and service man during the course of a service call was enacted by A. M. Hoover, as the housewife, and R. F. Cox, as the service man. The playlet proved most entertaining, and to some degree, instructive to all. Following the entertainment, the floor was cleared for dancing.



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Only by using SPORLAN valves can you be assured of PEAK performance on EVERY installation

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valve policy of his company. Mr. Wilkerson, of Dole Plate Company, talked on the shortage of materials required by the manufacturers of refrigeration products.

TRI-COUNTY CHAPTER

January 10—After a very enjoyable dinner, the meeting was called to order at Dorseys Tavern in Elgin.

When the nominating committee had made its report and the election had taken place, the following officers were designated to carry on the work of the Chapter during the coming year: *President,* Harold Anderson; *Vice-President,* B. V. Clark; *Secretary-Treasurer,* Clarence Stumpf; *Sergeant-at-Arms,* Fred Johansen; *Board of Directors,* Arthur Wolff, N. H. Rust, and Willis Stafford.

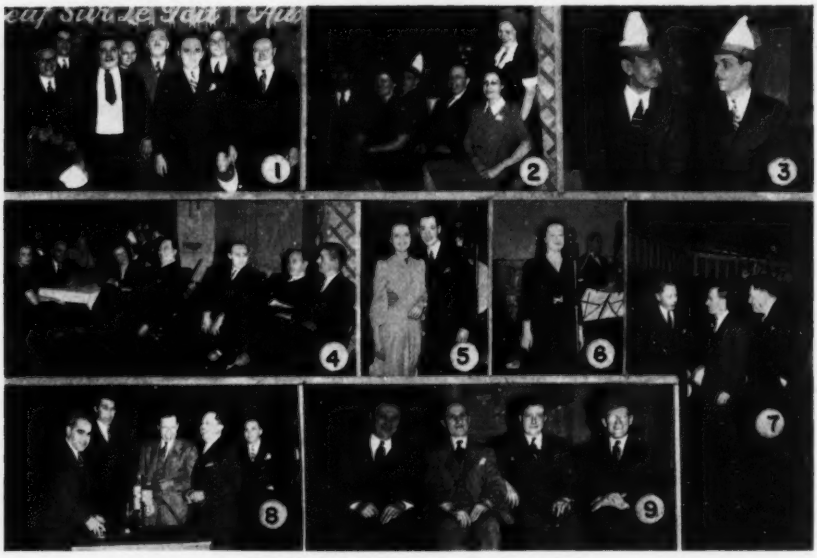
January 24—When the business of the evening had been completed, the meeting was turned over to Mr. Millen, who, in turn, introduced Mr. Stephenson of Davison Chemical Company. During Mr. Stephenson's talk on the drying problems encountered in refrigerating systems, many points of interest were brought out, among which was the fact that coils will hold moisture for as long as six months before permitting it to recirculate and freeze at the expansion valve.

A motion was made by Mr. Millen and duly carried to the effect that the per capita tax on any member inducted into military training be paid by the Chapter.

LOS ANGELES CHAPTER

December 11—This meeting was devoted primarily to the election of officers for 1941. The following were elected : *President,* W. E. Young; *1st Vice-President,* W. C. Irving, Sr.; *2nd Vice-President,* C. O. McClellan; *Secretary-Treasurer,* Frank Gillett; *Sergeant-at-Arms,* W. L. Flewelling; *Board of Directors,* W. W. Allison, J. C. Rodgers, J. H. Underwood, A. C. Line, Paul Kiefer; *Educational Chairman, J. C. Blair.*

January 8—The newly elected officers were introduced by Past President Payne, and installation to their respective offices immediately took place. After completion of a small amount of business, the meeting was turned over to Mr. Blair, Educational Chairman, who introduced C. F. Coppersmith of the Aluminum Corporation of America, and William Pruett, of Weber Showcase & Fixture Company. Mr. Pruett gave a short demonstration and explanatory talk on the miniature refrigerating machine recently designed and built by him. Mr. Coppersmith presented a moving picture entitled, "From Mine to Metal and Fabricating Processes of Aluminum."



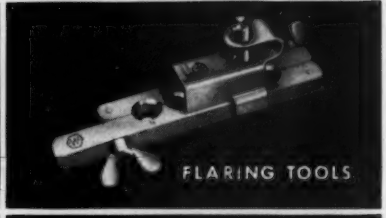
CHICAGO CHAPTER VALENTINE PARTY

Chicago Chapter held its valentine party February 11, in the main ballroom of the Midwest Athletic Club. About 250 members and friends in the industry were present. The party started off with the showing of Herman Goldberg's movie record of the 1941 convention, which occupied about one hour's time. Dancing to a local Casino orchestra followed. Favors in the form of valentine hats were provided for every one, and a door prize, a five-pound valentine box of candy, was provided for the ladies.

Pictured above are left to right (1) Officers of the Chapter, Pete Bendl, *president;* Myer Axelrod, *secretary;* Paul LaMarca, *sergeant-at-arms;* H. D. Busby, *treasurer;* Art Hoesel, *educational chairman;* Harry Bernhart, *director;* F. E. Jernberg, *director;* Otto Hladilek, *1st vice-president.* (2) Mr. and Mrs. William Metcalf; Mr. and Mrs. J. B. McQuam; Mrs. Herman Goldberg. (3) Milton Lang and Myer Axelrod. (4) Mr. and Mrs. Al Fine; Mrs. Mel Knight; F. E. Jernberg. The other three gentlemen are unidentified. (5) Mrs. Barksdale, winner of the door prize, and Johnny Barksdale. (6) Mrs. Jim Appelgate, Evanston Refrigeration Service, and radio singer shown at the microphone during one of her songs. (7) Charlie Benson, Dick Hendrickson, and George Franck. (8) Herman Goldberg packing up his projector; Bill Metcalf, Willis Stafford, Floyd Duvall, and Harry Bernhart. (9) Tony Butkus, Andy Piper, Edwin Dutschman, and A. J. DesRosier, all of Stanley Knight Corp.

For Refrigeration needs consult

WEATHERHEAD



WEATHERHEAD

Refrigeration Valves, Fittings and Accessories

MOUNT ROYAL CHAPTER

The Chapter held its first annual get-together party at the Club Chez Maurice, Inc., on Thursday evening, February 20.

The Club is one of the finest and most popular in Montreal, and, from the commencement of the dinner at 8:30 p.m. until closing time at 3:00 a.m., a most enjoyable evening was had by everyone present—which included one hundred and thirty R.S.E.S members and friends.

During the dinner, Mrs. McCullough, wife of the President, was informally presented with a bouquet of red roses, but apart from this, the gathering was entirely pleasure-minded, and all before and after dinner speeches were eliminated.

The members of the Chapter wish, at this time, to extend to Mr. C. E. Pigeon, Chairman of the Entertainment Committee, a hearty vote of thanks for his expert handling of such a fine party; and to Mr. B. Lacerte, 1st Vice-President, also to Mr. A. Gravel, Chairman of the Membership Committee, for their cooperation with Mr. Pigeon, which contributed so much to the success of the entertainment.

PHILADELPHIA CHAPTER

February 2—After the usual business of the meeting, the educational committee reported that Ranco, Inc. and the Atlantic Refining Company would provide interesting talks and demonstrations at the next meeting. Announcement was also made of a membership contest which would take place during the months of February, March, and April. Prizes are to be offered in the form of useful tools, the value of which will be governed by the number of new members each contestant brings in.

VIRGINIA CHAPTER RECEIVES CHARTER

The presentation of the charter of the Virginia Chapter was held Friday, February 14, at Ewarts' Cafeteria.

The meeting was called to order by Acting President, R. W. Lampie, and was turned over to Claude Brunton of Huntington, W. Va., who addressed the chapter, stressing the educational advantages, purposes, and benefits of membership in a chapter of the Society. In closing his address, he presented the charter to the Chapter.

Letters of congratulations from different chapters were read. F. J. Magri, to whom credit is due for bringing about the formation of the local chapter, was called upon for a speech and tendered a vote of thanks for his efforts.

The following officers were then elected and installed: *President,* R. W. Lampie; *Vice-President,* F. J. Magri; *Secretary,* B. A. Hauck; *Treasurer,* W. E. Booth; *Sergeant-at-Arms,* Ned Buchanan.

After a short congratulatory period, the meeting was adjourned. Later the members assembled with their wives at the Westwood Supper Club for a very enjoyable evening.

TRENTON CHAPTER

February 6—Harry Jaeger called the meeting to order and explained the projects he wished carried on during his year in office. Among these were a membership drive, more and better educational programs, which should include quiz presentations, reports on the cost of operating a business, and other business management educational material.

Following a brief talk by Mr. Eldridge of Virginia Smelting Company, a colored moving picture showing how sulphur dioxide is made by the Virginia Smelting Company, was shown. Mr. Eldridge then spent considerable time in answering questions on refrigerants and Thawzone A.

TRI-STATE CHAPTER

February 6—Mueller Brass Company provided the educational entertainment for the evening with a soldering contest. Forrest Poole was declared winner of the contest and was presented with a fine set of fitting cleaning brushes. Refreshments were served after the meeting.

February 11—The first report at the meeting was from the delegate to the National Convention, who gave a complete description of proceedings. Mr. Gruber then gave the nominating committee's report, which was followed by the annual election. Those elected are: *President,* Forrest Poole; *1st Vice-President,* John Smoot; *2nd Vice-President,* Donald M. Young; *Treasurer,* Claude Brunton; *Secretary,* Carl Ackley; *Sergeant-at-Arms,* M. E. Harrison; *Directors,* L. G. McClure, A. W. Albertson, Ray W. Steiner, Monroe Chase, and James Cottle.

February 25—The meeting was held at the home of Mr. and Mrs. W. A. Albertson of Huntington, W. Va. Mr. Brunton reported on the presentation of the charter to Virginia Chapter at Richmond, Va. Mrs. Albertson served refreshments.

"Mills" is the most important name in commercial refrigeration today.
Write Mills Novelty Company, 4100 Fullerton Avenue, Chicago, Illinois.

LONE STAR CHAPTER

January 20—The meeting was called to order by the president, who asked for a report from H. M. Biebel regarding the signs that are to be displayed in jobbers' supply houses. H. W. Cline gave a summary of the Convention at Chicago, and a moving picture was presented by Mr. Stern of Armstrong Cork Company.

MOUNT ROYAL CHAPTER

January 15—The meeting was called to order by B. McCullough, and after he had dispensed with the usual order of business, R. J. Anderson, District Engineer for the Dominion Oxygen Company, spoke on the subject of soldering and brazing tubing, fittings and sheet metals. The equipment used by Mr. Anderson for demonstration was supplied by the Dominion Oxygen Company. The members found the demonstration most interesting, and considerable time was devoted to asking and answering questions.

WOLVERINE CHAPTER

January 9—The meeting was devoted to the annual election of officers with the following being elected: *President,* Mr. McGuffey; *Vice-President,* Mr. Sidney Ferrin; *Secretary-Treasurer,* Mr. Amos; *Alternating Secretary-Treasurer,* Mr. Jones.

January 21—The meeting was called to order by President Sid Ferrin, and included in the first business of the evening was his appointment of Keith Hamilton and Clare McNaughton as the entertainment committee for the coming year.

MISSISSIPPI VALLEY CHAPTER

January 31—The meeting was held at the Republic Electric Company, with about thirty service engineers and members present.

On the educational program, Mr. Maveety and Mr. Chambers of the Mueller Brass Company conducted a soldering contest. H. Zeller was the winner of the contest at a working time of 13 minutes 7 seconds —this, in spite of a penalty of 95 seconds. Dale Yaap came in second with a working time of 12 minutes, 32 seconds, and a penalty of 120 seconds. The longest time required by any contestant was 21 minutes, 50 seconds. The shortest time was 11 minutes, 22 seconds, not including penalties.

February 18—After the reading of the minutes of the previous meeting and various correspondence received by the secretary, the election of officers took place with the following results: *President,* E. J. Soens; *Vice-President,* Edward Dick; *Treasurer,* Fred Tindall; *Secretary,* E. J. Ford; *Sergeant-at-Arms,* Mr. Cawiezell, *Board of Directors,* Messrs. Willetts, Felts, M. Heidt.

Some discussion arose regarding the meeting dates of the Chapter, and it was finally decided that the meeting night should be changed from every other Tuesday to the first and third Tuesdays of each month. It was felt that there should be no adjournment during the summer months.

Ladies Auxiliary

MISSOURI VALLEY AUXILIARY

January 7—The meeting was called to order by Vice-President Mrs. Doyle. The minutes and other reports were read. An election of officers followed with these results: *President,* Mrs. Lozier; *Vice-President,* Mrs. Krumrei; *Secretary,* Mrs. Haeberlein; *Treasurer,* Mrs. Cherry; *Sergeant-at-Arms,* Mrs. Doyle.

A Satisfied User writes our "Ad"!

You can duplicate this service manager's experience by using Thawzone to cure freezeups — destroy moisture—and prevent corrosion. See your jobber — or write us for detailed literature.

Highside Chemicals Co.
Newark, N. J.

(Excerpts from Service Manager's Letter)*

"We started using Thawzone in November, 1938, on service calls where expansion valve was frozen. It worked so satisfactorily, we later used it on new installations."

"Today, Thawzone has been successfully demonstrated in at least two hundred cases, both as a cure and a preventive measure against moisture."

"Thawzone has been a big money saver. All our service men now carry Thawzone as part of their regular stock."

** Original on file*

THAWZONE
Fully Protected by U. S. Patents
The PIONEER FLUID DEHYDRANT

January 23—President Mrs. Gordon Lozier called the meeting to order and proceeded with the business routine of the evening. It was decided that we would continue to answer roll call by giving a recipe or household hint. Due to the fact that the newly-elected secretary wished to retire from office, a motion was made and seconded that the offices of secretary and treasurer be combined. Mrs. C. J. Doyle, delegate to the National Convention in Chicago, gave a complete report of the convention proceedings, and thanks were extended to Mrs. Doyle for representing this Chapter so well. Congratulations also were in order for Mrs. Doyle's election to the National Presidency. Mrs. Doyle brought with her a brief case awarded to this Chapter by Mrs. Brunton, the retiring National President, for having the largest number of members. A handkerchief was given by the National Chapter to all members who could not attend the convention.

TRI-STATE AUXILIARY

February 11—The meeting was held at the home of Mrs. Young, Ashland, Ky. The treasurer's report was given, and since there was no further business to be transacted, the meeting adjourned. The next meeting will be held at the home of Mrs. Albertson, Huntington, W. Va. The ladies joined the men and held a valentine party. Games and contests were enjoyed by all. Mr. and Mrs. Young served a light lunch.

ROCKFORD AUXILIARY

February 3—The meeting was held at the home of the secretary, Mrs. Overman, and due to the illness of the president, the meeting was opened by the vice-president. After the routine business was taken care of, the rest of the evening was devoted to playing cards, with Mrs. Sturch winning first, Mrs. Overman, second, and Mrs. Hanley, low. We all enjoyed a Dutch lunch after the card game.

February 17—The meeting was called to order by the president. A letter of thanks was read from Mrs. Strong of Toronto, Canada, winner of the Rockford Auxiliary donation to the National Convention Bingo party. The secretary read a letter from the National Secretary, and was instructed to write her in regard to the applications. The president then appointed the committees to handle the selling of the "eats" at the dance sponsored by the men's chapter. Our entertainment was Jewish Poker, with Mrs. Overman winning first, Mrs. McCarthy, second, and Mrs. Larson, low.

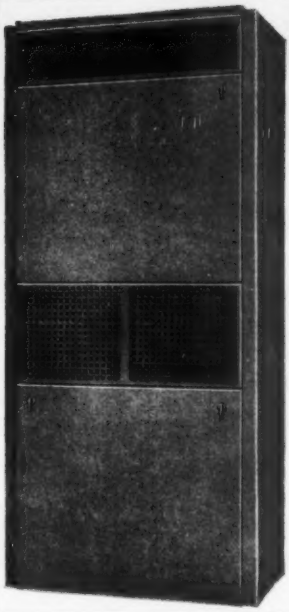
KANSAS CITY AUXILIARY

January 28—The meeting was called to order by Mrs. R. F. Cox, President, who announced that all meetings would be held at the Commonweath Hotel. New memberships were discussed. Mrs. Hoover was appointed as chairman of the Ways and Means Committee with Mrs. Brown and Mrs. Sullivan assisting. Suggestions were given the committee for making money.

The ladies were then the guests of the R.S.E.S. Chapter at the showing of the film, "More Precious Than Gold," put out by the Sheffield Steel Corporation.

ILLINOIS VALLEY AUXILIARY

A new Auxiliary has been formed at Peoria, Illinois, known as Illinois Valley Auxiliary. The officers are: *President*, Mrs. Glenn W. Dresback; *Vice President*, Mrs. Emil F. Luckert; *Secretary*, Mrs. John H. Sackey; *Treasurer*, Mrs. A. Don McGill; and *Sergeant-at-Arms*, Mrs. Henry P. Poercher.



Extra Profits for Servicemen

Make more money this year by selling NEVCO-AIRE Conditioning equipment. A quality product, time tested in the field, offered at a price which puts you ahead of competition. A line of conditioners from 1/2 to and including 10 ton. (*5 ton model illustrated.*)

Write for prices and literature.

NEVINGER MFG. CO., INC.
GREENVILLE, ILLINOIS

NEW TOOLS ADDED TO BONNEY LINE

IN their new catalog, recently announced, Bonney Forge & Tool Works made their first listing of their complete 1941 line.

Among the many new items included are a hinge handle, a cross handle and a two-inch extension for use with 1/4-inch square drive sockets and attachments; hexagon (6 point) sockets for 3/8-inch square drive with 5/16-inch, 3/8-inch, 7/16-inch, 1/2-inch, 9/16-inch, 5/8-inch, 11/16-inch and 3/4-inch openings; extra-deep hexagon (6 point) sockets for 3/8-inch square drive with openings from 7/16-inch to 7/8-inch.

Three new sets of 1/4-inch square drive sockets are shown with various assortments of handles and attachments to meet individual needs of service men. Also shown for the first time are three brand new sets of 3/8-inch square drive sockets and attachments, with assortments of from 11 to 20

NO. RF80 SET
Contains 1/4-inch square drive sockets with 1/4-inch and 9/32-inch hexagon openings; 5/16-inch, 11/32-inch, 3/8-inch, 7/16-inch double hexagon openings; 4 1/2-inch sliding "T" handle; six inch extension; non-reversible special refrigeration ratchet all for 1/4-inch square drive; 1/4 x 1/4-inch adaptor; four valve stem sockets, five packing gland nut sockets and packing nut socket for Kerotest valves all with 1/4-inch male drive. Metal box measures 7-1/2 x 3-1/4 x 1-1/8 inches.

Service
with a Capital "S"
FOR REFRIGERATION AND AIR CONDITIONING PARTS
WRITE FOR LATEST CATALOG ON YOUR LETTERHEAD. WHOLESALE ONLY
THE HARRY ALTER CO.
1728 S. MICHIGAN AVENUE, CHICAGO, ILLINOIS
3 CHICAGO BRANCHES, NORTH, WEST, SOUTH
NEW YORK PHILADELPHIA BRONX JAMAICA
NEWARK DETROIT CLEVELAND ST. LOUIS

pieces all packed in substantial, attractively-finished metal cases.

Two new sets of special refrigeration sockets and attachments, known as No. RF80 and No. RF81, are also shown for the first time, containing 20 and 28 pieces respectively.

Among the many other new items shown for the first time are a flare nut wrench with head offset at 15°, to remove the copper tube flare nut on the back of the expansion valve on Kelvinator models prior to those with hermetically sealed units; a series of short 15° angle box wrenches; a set of 15°-angle box wrenches in leatherette roll; a TuType wrench set in leatherette roll; four types of Channellock pliers; two new types of soft face hammers; a line of open end adjustable wrenches, made in five sizes with lengths of 4 to 12-inch and maximum capacities of ½ to $^{17}/_{16}$-inch; and numerous other items.

NO. RF81 SET

Contents include sockets with 1/4 and 9/32-inch hexagon openings; 5/16-inch, 11/32-inch, 3/8-inch and 7/16-inch double hexagon sockets; 4 1/2-inch sliding "T" handle; six inch extension; reversible special refrigeration ratchet; all for 1/4-inch square drive; four valve stem sockets, four packing gland nut sockets, packing nut socket for Kerotest Valves all with 1/4-inch male drive. Double hexagon sockets with 1/2-inch, 9/16-inch and 5/8-inch openings; six inch extension and eight inch sliding "T" handle for 3/8-inch square drive. 1/4 x 1/4-inch and 1/4 x 3/8-inch adaptors. Three thin wall double hexagon special refrigeration box wrenches with 3/8 and 7/16-inch, 1/2 and 9/16-inch, 5/8 and 11/16-inch openings—28 pieces in all—packed in a metal box measuring 8 5/8 x 5 3/4 x 1 1/4 inches.

Important to your Health!
Important to your Work!

No. 1600 FUMEGARD

When you enter a gas-filled room, you want the best protection you can get. The No. 1600 Fumegard is exactly what you need . . . both for safety and for working freedom.

The No. 1600 Fumegard is built on latest gas mask principles—combining utmost safety, with least bulk. Its compact design—husky rubber face piece—large, shatterproof, non-fogging lenses—airtight fit—exhalation valve—scientific absorbents . . . all assure working comfort and security against Ammonia, Sulfur Dioxide and other dangerous refrigerants. Furnished with carrying case and extra canister.

A Great Value at

$10.00 F.O.B. Brooklyn, N. Y.

Order yours today. Postage prepaid in U.S. if payment accompanies order.

PULMOSAN SAFETY EQUIP. CORP.
Dept. RS, 176 JOHNSON ST. BROOKLYN, N. Y.

FULLER DEMONSTRATES MOTOR FUNDAMENTALS

AS a result of the interest aroused in his simple demonstration of the fundamentals of motor operation before a recent

R. A. FULLER

meeting of the Worcester (Mass.) chapter of Refrigeration Service Engineers, R. A. Fuller, General Electric motor engineer, repeated the lecture before the Boston chapter of the same society on February 10.

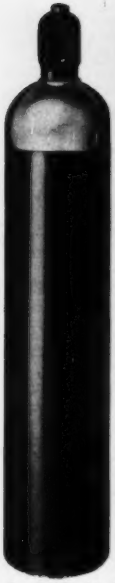
Adopting the premise that the principles of direct-current, single-phase, and polyphase electric motors can be easily understood, Mr. Fuller uses a laboratory demonstration of electric motor fundamentals employing charts and simple operating devices to show how the laws of magnetism are utilized to make motor operation possible. He also demonstrates various types of electric motors used in the refrigeration field.

S S S

HARRINGTON HEADS G.E. REFRIGERATION SALES

ELLIOTT HARRINGTON has been named sales manager of the General Electric air conditioning and commercial refrigeration department, with headquarters at Bloomfield, N. J., according to an announcement made recently by John P. Rainbault, manager, which further designates new sales sections and other changes in the Bloomfield organization. Rainbault was appointed manager on January 1, succeeding S. M. Crocker, who was elected a G.E. vice-president.

Harrington has been connected with Gen-



Marked Men

• Every Ansul cylinder is a "marked man." For every Ansul cylinder is *individually analyzed* — a written guarantee to you that Ansul refrigerants are just what we say they are — *pure, clean, dry.*

ANSUL SULPHUR DIOXIDE
METHYL CHLORIDE

ANSUL CHEMICAL COMPANY • MARINETTE, WIS.

AGENTS FOR KINETIC'S "FREON-12"

Watch for it!

YOUR NEW 1941

AIRO Catalog and Buyers' Guide

WILL BE READY

SOON

Send Requests Now!
Please Use Letterhead

AIRO SUPPLY COMPANY

2732 N. ASHLAND AVE

CHICAGO ASCO ILLINOIS

eral Electric air conditioning and automatic heating activities from their inception. Under the new arrangement he will supervise distribution and policy matters, and under him will operate three separate sales sections. The automatic heating sales sec-

ELLIOTT HARRINGTON

tion, under L. H. Hobson, will be responsible for the sale of all oil and gas heating sales throughout the country. The cooling equipment sales section, headed by C. M. Rowland, will supervise the sale of water coolers, room coolers, store coolers, refrigerators of the commercial type, and ventilators. The

Due to market conditions we are forced to make commitments for raw materials as much as eight to ten weeks in advance of delivery. Avoid delays during the spring rush by ordering your requirements now, so that we can insure prompt deliveries when you need them.

TECUMSEH PRODUCTS CO.
TECUMSEH, MICH.

contractor and industrial sales section, under S. Martin, Jr., will have the responsibility for the sale of all condensing units, evaporators, evaporative condensers, coils, and central plant equipment.

Rainbault also announced the appointment of Frank H. Faust as commercial engineer of the entire department, and that of E. B. McClelland as assistant sales manager. The latter will be in charge of field operations and distributor relations. In the absence of the manager, J. E. Kusik will henceforth be in charge of the air conditioning and commercial refrigeration department.

It is the intention of the management, Rainbault declared, to organize a special section for the purpose of assisting distributors in the merchandising and marketing of all of the department's products to speculative builders, apartment house developments, and government agencies.

✕ ✕ ✕

L. J. FREITAS TO REPRESENT ALCO VALVE CO.

ALCO VALVE CO. announces the appointment of Leo J. Freitas, 4408 Stanhope Street, Dallas, Texas, as the Alco

It's Portable - It's Profitable

SAVES CALL-BACKS, DELAYS ...PAYS FOR ITSELF OUT OF GAS and OIL SAVINGS

Get the Dayton V-Belt Service Kit for "on the job" V-Belt replacement service for all leading makes of automatic refrigerators—this compact, durable Swedish Fibre case contains visible assortment of 43 fractional horsepower V-Belts plus handy V-Belt Matchometer —only $23.48. See your jobber or write.

THE DAYTON RUBBER MFG. CO.
DAYTON, OHIO

Dependable High Purity and Dryness

Helpful Technical Service Always Available

Prompt Shipments Coast to Coast Distribution

DU PONT

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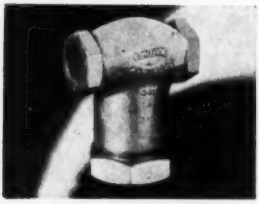
The Preferred METHYL CHLORIDE for Service Work

DU PONT

E. I. DU PONT DE NEMOURS & COMPANY (INC.)
The R & H Chemicals Department
Wilmington, Delaware
District Sales Offices: Baltimore, Boston, Charlotte, Chicago, Cleveland, Kansas City, Newark, New York, Philadelphia, Pittsburgh, San Francisco

GENERAL CONTROLS OFFERS THIS PERFECT COMBINATION FOR POSITIVE CONTROL OF ALL REFRIGERANTS, LIQUIDS, GASES AND VAPORS Fully powered, full ported, current-failure solenoid valve handles large capacities at a minimum pressure drop with safety. Instant full opening and tight shut-off assured. Strainers suitable for all services.



ABOVE—
General Controls Type K-15 Solenoid Valve

AT LEFT—
Series S-5-1 Strainers
Sizes: ¾" to 1½" I. P. S.

Ask for New 1941 Catalog

GENERAL CONTROLS

267 Fifth Avenue NEW YORK CITY

400 East Ohio St. CHICAGO, ILL.

Distributors and Stocks in all Principal Cities

sales representative for north Texas and Oklahoma.

Mr. Freitas is well known in that territory, having formerly managed the Dallas factory branch of Peerless.

He succeeds Douglas Doan, who is now associated with Chrysler Airtemp.

ROTARY SEAL IN NEW QUARTERS

ANNOUNCEMENT was made by Rotary Seal Company, recently, of their removal to a new location at 2020 North Larrabee Street, Chicago.

The new location provides the company with additional factory space, needed because of increased production, and with new office headquarters.

All communications should now be addressed to Rotary Seal Co., 2020 North Larrabee St., Chicago, Ill.

BRUNNER APPOINTS McDONALD

THE Brunner Manufacturing Co., Utica, N. Y., manufacturers of air compressors and refrigeration equipment, announces the

JARROW
DOOR GASKETS

Preferred by Manufacturers, Jobbers, Service Men

WHY? Because refrigerator door gaskets are a specialty—not a side line—with Jarrow! As a result, Jarrow Gaskets are the choice of many leading refrigerator manufacturers who demand the best in gaskets for their boxes. And, too, because the Jarrow Line is most complete—standardized replacement gaskets to fit nearly 95% of all commercial and household refrigerators. Ask your jobber—the chances are he stocks Jarrow Gaskets, exclusively.

★ ★ ★

Gaskets for Every Refrigerator Need

Waterproof Sponge Rubber, Rubberized Fabric, Extruded, Grease-proof Synthetic Rubber, Sponge Rubber Tubing

JARROW PRODUCTS

Factories: Chicago and Grand Rapids

General Offices: 420 N. La Salle St., Chicago

appointment of O. R. McDonald as Sales Promotion Director with headquarters at Utica, N. Y.

Having spent his entire career in sales promotion and merchandising of industrial

O. R. McDONALD

equipment, Mr. McDonald's experience covers practically every phase of selling through recognized channels of distribution.

In 1917 Mr. McDonald or "Mac," as he is better known to the trade, was a member

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DRIERITE

FOR DRYING AIR REFRIGERANTS INDUSTRIAL GASES

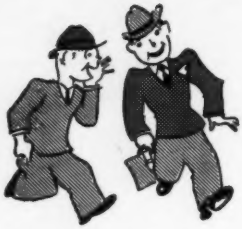
DRIERITE is an Efficient, Rapid, Economical Dryer for all the Modern Refrigerants. Dries both by Chemical Action and Adsorption.

Used in Dehydrators by leading manufacturers and furnished to the Service Engineer by leading Supply Dealers.

Write for literature.

W. A. HAMMOND DRIERITE COMPANY
YELLOW SPRINGS, OHIO

I'm going to town this season . . .



I'm getting more Hermetic work now that I can service

Meter-Misers

with

HERVEEN

★ As the demand for Hermetic servicing increases, it becomes more and more necessary for the well equipped service-shop to be able to handle this work. That's where we come in; Herveen is the replacement gas that enables you to service Frigidaire Meter-Misers.

★ Why not plan to get this profitable additional business for your own shop in 1940? Every day more refrigeration parts jobbers are stocking Herveen. If yours doesn't handle it, write us direct.

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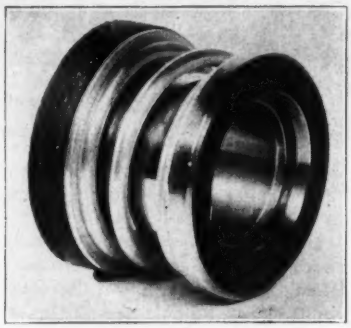

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SHAFT SEALS

ON NEW—AS WELL AS ON OLD, WORN AND SCORED SHAFTS.

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of the Merchandise Committee A.E.A. and in 1918 served as a member of the Board of Directors of the old A.E.A. In 1937 he was a member of the Merchandising Committee of N.S.P.A. representing the equipment manufacturers, and in 1938, he was a director of the organization. Throughout this entire period, Mr. McDonald has been advertising, sales promotion or sales manager of the companies with which he has been associated.

✕ ✕ ✕

MIDWEST JOBBERS MEET

THE Midwest Refrigerator Supply Jobbers met at the Hotel Fort Des Moines, February 16, with jobbers attending from Omaha, Sioux City; Lincoln, Nebraska; Minneapolis; Des Moines; Davenport, and Kansas City. Many important subjects were discussed. The new officers for the coming year are as follows:

President, Ernie Tramposh, who is with the Refrigeration Equipment Company, Kansas City, Missouri.

Vice President, E. L. Bengston, Republic Electric Company, Davenport.

Secretary-treasurer, Jesse Boyd, Dennis Refrigeration Company, Des Moines.

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Any refrigeration service or installation man is worth more to himself or his employer if he also knows WELDING.

You can—*in your spare time*—obtain *complete* training in welding. Write for full details *today*. It will place you under no obligation whatsoever.

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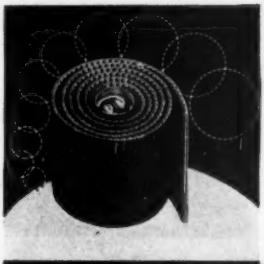
PHILADELPHIA BRANCH OPENED BY GENERAL CONTROLS CO.

ANNOUNCEMENT is made by General Controls Co., Glendale, Calif., of the opening of a new factory branch office at 4515 North Broad St., Philadelphia, Penna.

GEORGE LE FEVRE

In charge of the new office will be George Le Fevre, for the past three years sales engineer in the company's New York City branch. Le Fevre attended the Pratt Institute, School of Science and Technology in Brooklyn.

MALLORY Universal AC CAPACITORS



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ONE CAPACITOR REPLACES ALL THREE

Stop making double trips on Motor Start Capacitor Replacements. A representative line of Mallory Universal AC Capacitors will cover every replacement need and reduce your inventory investment from one-half to two-thirds.

Round types MSU are encased in the smallest metal container possible. Used with the specially developed "size adjuster" you can work to a maximum diameter of 3" and a maximum height of 4¾". Simply trim to the required size for a perfect fit.

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Write today for Catalog M-801 giving complete details and replacement recommendations.

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and you will be assured of getting the Highest Quality and Exact Duplicate of the original part which came in the compressor when new.

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S S S

MOTOR-STARTING CAPACITOR MANUAL

REPLETE with practical application data, in addition to handy listings of electrolytic and oil motor-starting capacitors, the new 1941 edition of the Aerovox Industrial Capacitors Manual should be in the working library of every man engaged in servicing refrigerators and fractional horsepower motors utilizing capacitors. For the first time this edition introduces a numerical cross-section of Aerovox types with such data as A.C. voltage, actual range, nominal range, dimensions, illustrations, list price, and corresponding parts numbers of motor manufacturers. The alphabetical listings of motor types and their capacitor re-

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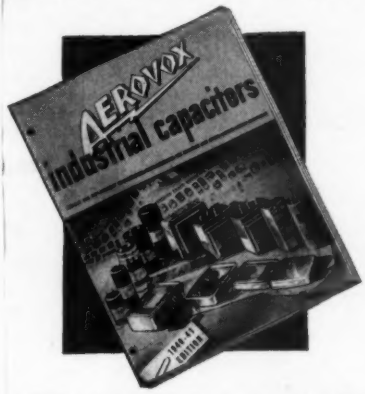
quirements, are more extensive than ever before. To simplify inventories and the handling of rush servicing jobs, there are listed certain standard Aerovox capacitors which serve a plurality of motor types, as



so-called universal replacements, as well as the exact-duplicate replacements. A copy of the manual is obtainable from the local jobber, or from Aerovox Corporation, New Bedford, Mass., on request.

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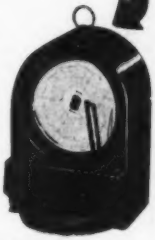

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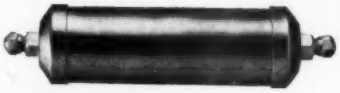

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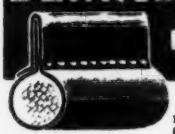

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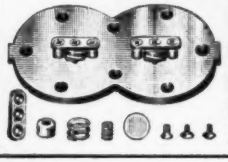

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